

THE
BRITISH GARDENER'S
NEW DIRECTOR,

Chiefly adapted to the CLIMATE of
The NORTHERN COUNTRIES:

DIRECTING

The NECESSARY WORKS in the KITCHEN, FRUIT,
and PLEASURE GARDENS, and in the NURSERY,
GREEN-HOUSE and STOVE.

With the ADDITION of a DISSERTATION on the
CULTURE of FOREST-TREES.

By Sir JAMES JUSTICE, Bart. F. R. S. and one of
the principal CLERKS of SESSION in Scotland. R

To this EDITION are prefixed,

- | | |
|--|---|
| I. His TREATISE on <i>Vegetation</i> , with <i>Directions</i> for making <i>Compost</i> for the more curious FLOWERS. | and <i>Roots</i> as are necessary for the <i>Kitchen Garden</i> , pointing out their <i>Culture</i> . |
| II. The whole Process of <i>Grafting</i> , <i>Pruning</i> , and <i>Inoculating</i> , &c. with engraved <i>Representations</i> of the <i>Sections</i> . | VI. An Alphabetical <i>List</i> of <i>Flowers</i> , <i>Trees</i> , and <i>Flowering Shrubs</i> , and <i>American Trees</i> , with the <i>Season</i> for sowing, &c. |
| III. <i>Directions</i> for planting of <i>Orchards</i> . | VII. A <i>Collection</i> of the most curious <i>Oriental Hyacinths</i> , with their <i>Culture</i> . |
| IV. A <i>Collection</i> of the best <i>Fruit Trees</i> , with their peculiar <i>Characters</i> , being such as have perfected their <i>Fruits</i> in <i>Scotland</i> . | VIII. A <i>Collection</i> of the most curious <i>Annuals</i> and <i>Exotics</i> , with their <i>English Names</i> in alphabetical Order, with <i>References</i> to their <i>Culture</i> . |
| V. A <i>Catalogue</i> of such <i>Plants</i> | |

ILLUSTRATED with COPPER PLATES.
The FIFTH EDITION, augmented and improved.

D U B L I N:

Printed at the REQUEST and RECOMMENDATION of several
GENTLEMEN of this KINGDOM,
By JOHN EXSHAW, in *Dame-street*, M.DCCCLXXI.

NEW DIRECTOR

THE NORTH BRITISH COUNCIL



THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE NORTH BRITISH COUNCIL

THE
P R E F A C E.

*I*N Compliance with the general Custom which has made it necessary for every Author, who offers his Sentiments to the Public, to give a Reason why he addresses so respectable a Body, I shall in a few Words declare, that my Motives were the Love of my Country, and a Desire of communicating to its Members, the Advantage my Travels and my Pleasures have given me, in the particular Science I have treated of.

Our Situation not being so well adapted as others to the Purposes of Vegetation, requires the Hand of Industry and Experience to forward its Improvements, in both which I have been attentive: The latter has been extended to upwards of Twenty Years, in which Time, Diaries have been

P R E F A C E.

carefully kept, both for a future Consultation, and a Comparison with the present; for the quick Transition of our Seasons, and the abrupt Manner in which they visit us, require every Expedient to be taken, particularly when we attempt to transplant into our rougher Clime, the Natives of the more mild and serene, which, though attended with those Advantages, require Care and Art to forward them to Perfection.

As some, who are not stimulated with the same Motives that engaged me in this Performance, may think I have, by directing the Culture of the more common Things, departed from that Part of Gardening which should be the Entertainment of a Gentleman, give me Leave to assure them, I have pleased in instructing the lowest of my Countrymen, nor has it been a Work unrewarded, when to my Knowledge they stand in Competition with those who have had more favourable Opportunities, I mean of being under Men of more extensive Knowledge, but not in a Climate that requires so much Art and Industry to foil, owing to the Variety and Sharpness of the Seasons with which we are visited; by this, they have so far advantaged, as to excel in other Countries, and to be valued for their Knowledge in this Particular. Some neighbouring Places experience this unfavourable Cast of Nature, with a Degree nearly approaching to our's; there they have been found most serviceable, and coveted for their Abilities
in



P R E F A C E.

in the Culture of what may be called rare as well as common.

I would not be supposed to have so limited a Conception, as to think that Merit does not rest elsewhere, this would be an ill Requit for the Kindness and Generosity, with which I have been treated in the different Countries I visited, whose Science has been chearfully communicated, and enabled me to transplant a Treasure to my Country, and there to cultivate Things unattempted before.

I hope I shall be pardoned if I should mention, that these my Labours may not be unworthy the Attention of those, whose Countries and Clime approach in some Degree to Scotland, where the Seasons are sharp, attended with great Moistures, turbulent Winds, and chilling Blasts, from its Vicinity to the Western and Atlantic Oceans.

Mr. MILLER, (of whom I must always retain the highest Sense, both for the Knowledge I have received from his Labours, and more particularly that Friendship and Communicativeness with which he always treated me) is blessed with a more favourable Situation in the Progress of his Experiments, by enjoying the kind Influence of the Sun, (the Parent of Vegetation) in so high a Degree, as to have the Vine in full Ripeness on the natural Wall, without the Assistance of Art; and could we all experience the same Felicity, I need

P R E F A C E.

not have communicated my Observations, or my Countrymen wanted any other Tutor : But Providence in his Wisdom has directed it otherwise, by which the Ingenuity of Mankind has had Variety of Employ, and the Field of Invention been so enlarged, as to excite their Industry, which otherwise would have been neglected.

The Composts I recommend have not been hastily taken up, but from an attentive Consultation with the best Florists, where each curious Flower enjoyed its natural Clime; and this further I have to add, that each Sort has been repeatedly used, and with a Success that must please every Lover of the Art.

I have subjoined a Treatise on the Culture of such Forest Trees as have been esteemed the most valuable; in it is given the Experience of much Labour and Expence, attended with many Disappointments, but in the End happily accomplished; and for the Satisfaction of Posterity let me assure them, they will not hazard their Success by implicitly giving up to my Directions, being the Result of Forty Years Experience, and of this the Woods and Plantations on my Demesne, shew how far the Practice is right.

*In the Course of these Directions, I may be thought to have been too minute, and even to have been guilty of some Repetitions, but in these I hope to be indulged, as it arose from the Manner
of*

P R E F A C E.

of making my Entries, and a Desire of being intelligent to every Capacity. This in Time will have its Effect, and raise to us a Number of mechanical Gardeners, so that Gentlemen will not be subject to, nor pestered with ignorant Pretenders, who have rendered abortive Plans that might have been as happily executed, as conceived with Propriety.

But not to trespass any longer on my Reader's Patience, I shall beg Leave to conclude with an Observation of our great Master, That they that are Whole, need not the Physician.

Edinburgh, September, 1763.

N. B. The Improvements and Additions that have been made to this new Edition are so great, as to give it a considerable Advantage over any other, and are such as must be very acceptable, not less from their Use, than the particular Pleasure they must give to all Lovers of Gardening. The first that appears is the different Processes that are necessary for the Preservation and well bearing of our Fruit Trees, whether against the Wall or Standards, with Directions for Grafting, Inoculating, &c. assisted by engraved Representations of the different Sections, necessary to be made for the perfecting of the Work.---A large Collection of the best Fruit Trees, with their peculiar Characters, and such as have ripened well

P R E F A C E.

in Scotland.--Directions for planting of Orchards, as recommended by a French Writer, with that of grafting the Wilding on itself, both to improve its Growth and Fruit for Cyder.--Mr. Adam Taylor's Manner of raising the Melon and the Pine Apple.--A Catalogue in alphabetical Order, of such Plants and Roots as are necessary for the Kitchen Garden, pointing out their Culture and Season of sowing or planting, &c.--The Culture of the Articles in the Kitchen Garden thrown into the same Order, and the Process of each brought into one View.--Mr. George Voorhelm, of Haerlem, his Process for the Culture of the Hyacinth, translated from the French.--A Catalogue of the most curious Annuals and Exotics, with their Names in English, referring to that of their Culture and Botanical Names.



A T R E A-

T R E A T I S E
O N
V E G E T A T I O N, &c.

THE most natural Introduction to a work of this kind, before we enter into particulars, is to consider the nature and qualities of Composts; that is, the meliorations necessary for different soils, in order to bring the various plants we intend to raise, to their greatest perfection.

Earth, according to the definition of the learned *Boerhaave*, is a fossile body, neither dissoluble by fire, water, or air: it is insipid, more fusible than stone, still friable, and usually containing a share of fatness in it.

Mr. Boyle says there is no such thing as a strictly simple Earth; and it doth not appear that nature, any more than art, affords an elementary Earth; those even of the simplest sorts, having been found, upon examination, to have qualities not ascribed to pure Earth.

Earths are of many and various qualities. Some are simple and immutable; such as Chalk, Pumice, and Rotten Stone.——Others are compound and fatty; of which kind are the crumbly red, white, and brown coloured Earth, Fuller's Earth, and divers kinds of Medicinal Earths, such as the *Terra Cretica*, *Hungarica*, *Lemnica*, &c. which Earths are all resolvable into oil, a little acid salt, and a *Calx*, which is the basis, or *Earth*, properly so called.

Sand,

Sand, is by naturalists, generally ranked as a species of Earth, though I think very improperly; for sand, strictly speaking, is a sort of chrystal, divided into small transparent pebbles, calcinable by the addition of a fixt alkaline salt, and becomes fusible and convertible into glass.

Earth is rendered fertile by means of sand, and becomes fit to feed and nourish vegetables, and vegetate; such Earth, by itself, is liable to coalesce into an hard coherent mass, and, while thus embodied, and as it were glued together, will be very unfit for the nourishment of plants: but where hard sands, (whose chrySTALLINE particles are indissoluble by water, and therefore always retain their pristine figures) are intermixed, they keep the pores of the Earth open, and render it in some measure organical, the juices thereby being easily conveyed, prepared, digested, circulated, and at length emitted by strainers and thrown off in the roots of plants.

Earth is made up of two parts; the first the containing part, *i. e.* the Body, Bed or Couch; the second, the part contained, *viz.* the Nitrous or Sulphureous Particles, or Prolific Salts. The first is but a lifeless mass, and is no more than the receptacle of the other, and when considered, simply abstracted from the prolific salts with which it is replenished, is a lifeless, dead, inanimate body; but when, by the co-operation of water, sun, and air, it is put into motion, it then promotes and carries on the work of vegetation.

Vegetables are natural bodies, organically formed, but without sensation or spontaneous motion, adhering to another body in such a manner as to draw from it its nourishment, and having power of propagating itself by seed.

By its consisting of vessels and juices, it is distinguished from a Fossil which is dug out of the Earth; and differs from an animal by its adhering to another body, and deriving its nourishment therefrom.

Vegetation is the act whereby plants receive nourishment and grow; or rather that concurrence of acts between Vegetables and the Earth, properly composed by salts, and by the nitrous particles and effluvia of the Earth



Earth acting thereupon. As to the different vessels of plants, proper to receive, and prepare the juices for their nourishment, it being foreign to my purpose, I shall not enter into a discussion thereof at this time, but return to what I first proposed, viz. to consider the composts of ground, whereby Vegetation is promoted, and the proper nourishing juices more easily conveyed into the vessels of the Vegetables that are planted therein.

Composts are made up of several sorts of soils, or earthy matter, mixt together, to make a manure for assisting the natural Earths in the work of vegetation, by way of amendment or improvement.

Composts are various; and ought to be different, according to the different qualities of the soils they are designed to meliorate. As a loose sand requires a Compost of a heavy nature; so on the other hand, a soil that is heavy, clayey, or cloddy, requires a Compost of a more sprightly and fiery nature, apt to divide those clods and clay; to animate and give fresh vigour to that lumpish and coherent mass, which would otherwise obstruct the act of vegetation; and to give life and full play to all the fibres of the roots of such plants as grow therein. The use of Composts is to invigorate the different species of nature, whether for our pleasure or use, and is no other than adapting of soils to these plants, &c. in which each have been found best to agree with, for their utmost perfection, and which, from experience we have found they most delight in. To the making up of these I shall at present confine myself, as, in the progress of this work, I shall have many occasions to inform my readers of the different composts proper to be used as well for large gardens, as the different plants that are there usually raised.

Directions for preparing the Compost for the PRIMROSE, see their Culture, p. 251.

As I intend to treat of the proper Composts for all the different genera of flowers, I shall begin with those which make their appearance first in the spring; and shall insert the rest in their due order. The first considerable flower that makes its appearance in the spring, is the *Primrose* or *Primula Veris*. These are distinguished into

two sorts; the *Primula Veris*, properly so called, which carries but one flower upon a stem; and the *Polyanthos Primula Veris*, which carries many flowers upon a stem. The Compost they require to prosper in, is thus made: To two thirds of rich Garden Earth, or rather Virgin Earth, (by Virgin Earth I mean that dug from under old pasture, nine inches deep, which was never spaded) this, with the sod, is to be laid up in an heap for two years to rot, with one third of fine white Sand; if this cannot be had, sea Sand, over which the sea flows, will do: but you are to observe with respect to sea sand, that you are to lay it open to the sun and air two months before it is used, that its crude salts may be properly digested; which practice is proper not only in this, but in all cases where sand, over which the sea flows, is made use of; if neither sea Sand nor white Sand can be conveniently had, in that case pit Sand, or fresh river Sand may be taken. The before-mentioned proportions must in all cases be strictly observed, unless the soil is a clay. In this last case half sand and half clay must be taken; and the Compost must lie twelve months, to be turned up every fortnight, to reduce and moulder the clay.

Before I proceed further in the directions for Composts, it may be proper to take notice of the several dungs which are to be used to enrich and meliorate the different heaps, to be afterwards directed. Dungs in general are designed to repair the decays of exhausted or worn-out lands, and to cure their defects, which are as various as there are dungs to meliorate and restore them. Some lands are cold, moist and heavy; others again are light and dry. The nature of dungs are equally various; some are hot and light, as sheeps, horses and pigeons dung; others again are fat and cooling, such as the dung of oxen; cows, and hogs. Fresh dung is never to be used. It ought to lie by at least twelve months to rot; after which to be exposed to the sun; and when dry, beaten and sifted, and made into as fine a consistence as possible. This management of your dung is only necessary, when you are to mix it with the Compost intended for the finest flowers; but dung properly rotted, although you are not at the expence of beating

beating and sifting it, will serve all the purposes of the Kitchen Garden equally well.

The effects that are to be expected upon land by dung; must be according to the distempers they are to cure; the dung of oxen, cows, and hogs, must be given to clean, light, dry Earths, whilst hot and dry dungs must be given to meliorate cold, moist and heavy lands.

There are two peculiar properties in dung; the one is to produce a certain sensible heat, capable of producing some considerable effect; this is found in the dung of horses and mules, which is a while moist when newly made; this dung when fermented we use for hot-beds, to produce early in the spring those plants and fruits in perfection, which the rays of the sun naturally produce in the summer: the other property of dung is to fatten the Earth, and render it more fruitful. The different operations of the different dungs are carefully to be attended to. The dry light Earth, must have cow dung, to cool and enrich it; and to heavy, sour, clay land, give horses, mules and pigeons dung, to dry, meliorate, fatten, and divide its particles. These are general and certain maxims, handed down to us from former ages, and confirmed by our own experience.

I have premised thus much on the nature of dung, as it is one of the principal ingredients of Composts for the different flowers of the Spring.—I shall now proceed in order to the other flowers, and the soils most proper to bring them to the greatest perfection.

The Compost for the AURICULA, see their Culture, p. 313, 318, and 323.

The second flower which adorns the spring is the *Auricula*. The beautiful varieties which have been, and are annually produced, of these grand flowers, attract the eye of the most indifferent beholder, as well as the Florist. The Compost to be used for them, in which they blow best, is made up in the following manner: To a cartful of good fresh Virgin Earth, add two loads of well rotted and well riddled cow dung; but if your soil is stiff, cold, and clayish, the fourth part of it must be

be horse dung; to these add a cartful of fine white sand, or of rough sand from a fresh river; after your different heaps are riddled and made fine, mix them in the precise proportion here mentioned, and they will be fit for use in six months, observing to toss them up every fortnight, that the different matter of which your heaps consist may be equally mixed; and this you are to be particularly attentive to.

*Compost for HYACINTHS, see their Culture, &c. p. 263
272 and 305.*

The Compost used for *Hyacinths*, to bring them to their greatest perfection, being very different from what has hitherto been used, I shall be very particular in giving directions how it must be made up, which will lead me to consider a little more fully the different soils which are to be met with. This noble flower may properly be called a native of *Holland*, since, from the seeds gathered from plants which grew there, there have, within these fifty years, been raised upwards of eight hundred different sorts. To have them therefore in perfection in these climates, we must imitate the *Dutch* soil as near as we can.

In *Holland* their natural soil is sand and moss, or a black rich fallow. The white sand there is naturally mixt, and makes a third part of this fallow; about two feet below this, there is a fattish substance always nourishing what is planted in it; and indeed there is no interruption of growth, nor want of a nourishing sap, during the whole year, except when their severe frosts prevent the exertion of the soil to forward vegetation.

One would imagine that plants would suffer in such ground, by being too wet below, and by the rains from above; but it is quite otherwise; the sand in the soil above, dries up the rains which fall, whilst the glutinous fat matter below is continually sending up its vegetative qualities; and in case the heat in Summer should parch what grows near the surface, quantities of cow dung are used to cool the sandy surface. This dung, having this excellent quality, that, covered but with four
inches

inches of any sort of Earth, it will retain its moisture and moistening qualities in the hottest summer.

To make a soil therefore, equal in goodness to this, for *Hyacinths*, *Tulips*, *Ranunculuses*, and *Anemonies*, and to make them blow and increase as they do in *Holland*, is to most of our gardeners a thing unknown; but nothing is more certain than that we may imitate the fine *Dutch* soil; nay, we may have our soil as good as the *Dutch*; for, by carefully preparing the Compost in the manner prescribed, flowers have been brought to as great perfection as ever they were in *Holland*, and as few roots, if not fewer, have been lost in a season, than ever in proportion were lost in that country.

The soil that is composed of clay, (which is certain death to *Hyacinths*;) must be avoided, so that our choice must be of such, where the least of it is in the composition. The black rich mould, and the mossy land, in which we abound, I shall give proper directions for meliorating. Having varieties of sands, and plenty of cow dung, and these materials being properly mixt, by length of time may be brought to become a mass of Earth as good for propagating *Hyacinths*, as that in *Holland*. Therefore, I proceed to give directions how the Black Earth is to be used, such at least as is the freest from clay, or its particles. There are two sorts of it; one which is mostly found in gardens, and another below the sod of pasture lands. If you use the garden sort, which has been often cropt by the gardener, take a quantity of it nine inches deep below the surface; spread it out during a winter and a summer, to enjoy the benefit of the sun and air, in the best exposed part of your Compost-yard, which should be closely paved or flagged to prevent the liquid matter which is highly impregnated with the vegetative quality, from being lost, as not any thing contributes so much to the value of your Compost, as the frequent turning this liquid into the heap, while under preparation: If you take your earth from pasture land, go no deeper than nine inches; take the sod along with it; lay it out and expose it in the same manner for fifteen months before use; but take care that the lower part of the sod be turned up to the sun, so that the grassy

b

part

part may be well rotted to mix with the earth; which must be well riddled to take out the stones.

The white Sand, over which the sea flows, is very good for flowers, as it is animated with its saline effluvia; but this must be cautiously used, as it is too salt for immediate use, and would be of dangerous consequence; and should the proportion be lessened, it would not answer the purpose of properly dividing the particles. The best method is, to lay it in your Compost-yard for two months, in which time much of its crude salts will evaporate, so as to be fit for use.

They have a sand in *Holland*, which is upon the hillocks of their pastures on the sea shore, this they dig for two or three feet deep, which is fat, glutinous, and brackish; this they carry to their Compost-yards, and, after exposing it some time to the sun, they use it in their Composts. This is the very best Sand for all sorts of flowers. It divides the earth and dung effectually. It is very fine in its texture; and the salts it contains, promote Vegetation to admiration.

Where the sand I have recommended is not to be had, we must use pit or fresh river sand. Pit Sand, which is very often clayish, must be put into a vessel with water; and washed until the water comes off clear, which must be exposed some time to the air and sun before it is fit to be mixed with your Compost. The river or brook sand, which has clayish particles often mixed with it, must be taken the same care of in washing and exposing to the sun and air, which will soon fit it for your Compost-heap; and when you have planted your roots, should you observe that they do not vegetate nor blow as fast and as fair, as you could wish, to four cartfuls of your Compost, when properly made up, add ten pounds of salt, dissolved in water, which pour on the heap.

In the inland countries they have the advantage of moss, or mossy earth; which, when duly prepared, is very free, and, when enriched with proper manure, is one of the best soils for flowers, and is next in goodness for that purpose to what the *English* Florists call Wood-pile Earth, and nearest in quality to the *Dutch* soil. To make this fit for use, use the following method of preparing

paring it: before you lift it, pare off its surface, which is greenish by the growth of the plant properly called *Moss*; but observe, that the place from whence you take this ground be not immerfed in water, or where water stands in the summer-time; these grounds are sour, barren, and can never be mended by any culture whatever; but let the place, from whence you take your earth, be open, free, airy, and of a middling dryness, rich and buttery to the touch, but by no means clayish or stony; dig about twelve inches deep, and no further, and when you have got a sufficient quantity of it, bring it to your Compost-yard, spread it out, let it enjoy the sun and air in summer, and the frosts for one winter, tossing it up at every thaw; by this means it will be meliorated and divided; and after lying twelve months in this manner, it will then be fit to incorporate with the rest of your materials.

Of all dungs whatever, none is so proper for cultivating flowers as cow dung; because a great deal of sand, (one third at least,) is necessary in most composts for flowers of the bulbous kind; and sand being hot, it must have a manure to cool and fatten it; for which the dung of cows, oxen, or hogs, is the most proper. The method I use to make this dung fine and fit for the purpose is this: In *July, August* and *September*, while the cows are at grass, and are fed with grass in byres in the night time, take out the dung and lay it in your Compost-yard in small heaps, where it will probably heat; but this is not to be minded. In *November* and *December*, when the frosts are coming on, lay your dung over the pavement, to the depth of six inches, and no more, to receive the benefit of the frost; for one month's frost will rot your dung more, and make it fitter for use than three months at any other time. When the frosts are intirely gone, lay your dung again up in heaps or ridges two or three feet thick; there to lie till the middle of *May*, when the hot weather begins to set in, then spread it thin, and beat it with a plaisterer's lime-beater, and riddle it very fine. The grosser particles however ought not to be flung away as they may be used in the Kitchen Garden to very good purpose.

X A TREATISE on VEGETATION, &c.

Your dung thus dressed must then be put up into pretty large heaps, where should it heat, it must lie until quite abated; and the winter following must be spread out, for the advantage of the frost, and by summer following it will be ready to put into your Compost heaps.

There is another manure, which is of very great use to the Florists; particularly for the many salts proper for vegetation it contains, and requiring but one season for its preparation.

The Dutch Compost for HYACINTHS.

This is much used by the Florists in *Holland*, and when I was last there, I observed a gentleman's *Hyacinths* in the highest perfection, which led me to enquire what Compost he used, which was no other than one third of fine white down sand, one third of extremely well rotted cow dung, and one third of rotted *leaves of trees*. This is the manure I shall now treat of, and shew the manner of preparing it, which every Florist should never be without.

Let the leaves of those trees and bushes which fall in the end of autumn, be gathered and laid in your Compost-yard; which must be spread out, over which you lay your cow dung, then a layer of leaves, and another of cow dung, and so alternately until your heap is raised to 12 or 14 inches, but no higher: the sap and salts of the dung will, in one winter, intirely rot your leaves, so that in *April* there will not be the least appearance of them.

Having thus given directions for preparing your sand, cow dung, leaves of trees, and the kinds of different earth to be used, I proceed to give their proportions. To a load of what sand you can procure, after it is prepared agreeable to the foregoing direction, take two loads of cow dung, in which the leaves of trees have been rotted, and the whole sifted and made fine, together with one load of fine riddled and prepared earth either of the mossy kind, or of the black earth, I before described, but by no means such as have any particles of clay. This mixture should be prepared in *May*, by turning

turning it up every three weeks; but should it heat when in an heap, do not stir it until the heating is over, and should you perceive any mouldiness on opening the heap, spread it out for the advantage of the sun and air, which will soon recover it, (observing always to keep your Compost free from weeds) then it must be again made up into an heap, and the *September* following put it into your *Hyacinth* beds, whose culture you will find treated of under their respective heads.

Compost for TULIPS, see their Culture, p. 324 and 335, RANUNCULUS, IRIS, and ANEMONIES, see p. 340.

The Compost for your *Hyacinths* should be changed every year, which will not be attended with any loss, as it will answer very well for your *Tulip* beds, adding to it a fourth more of sand, especially if you plant your *Tulips* the next year after your *Hyacinths*, observing to lay your compost in ridges for the advantage of the sun and air, a fortnight before planting; and the following year you may plant your *Ranunculus*, *Anemonies*, and *Iris*, especially that sort well known in the *Dutch Catalogue*, by the name of *Iris Anglica Bulbosa*, of which the *Dutch* have raised many uncommon beauties, and this compost after it has answered the purpose of raising your most curious flowers, let it be again laid in the Compost-yard, to sweeten and meliorate for more ordinary uses.

Compost for the CARNATIONS, see their Culture, p. 424 and 426.

Directions for the Culture of the Kitchen Garden, according to its Soil.

In laying out your *Kitchen Garden*, the following instructions will be necessary to be attended to, according to the soils with which you engage; if your Garden is rocky or gravelly, you are to bring from a rich pasture good loamy earth, laying it in heaps from five to three feet deep. The soil which you take from the pasture ground, should not be taken deeper than nine inches, or a foot, and to be laid in heaps for a twelvemonth to rot,

before laid on the ground. If your soil is clayish, strong and stiff, it will be necessary to plow or dig it three or four times, giving it a cross-plowing with a good deep furrow, and should you be under a necessity of having some summer crops in the quarters, lay up their soil in ridges the preceding winter to be meliorated by the frost and snow. The best manure for such a soil is sea-coal ashes, the cleansing of streets, and horse-dung; but where these are wanting, sea-sand may be used with great advantage, observing that your crops will be proportioned to your quantity of sand, as it divides the clayey particles and the salt enriches the soil; but on the contrary should your situation be on a hot, sandy soil, not any manure more proper than the dung of cows and oxen. Marle, when suffered to lie a twelvemonth on the surface, and afterwards plowed or dug into the soil, will be of great service. Thus I have given what knowledge I have obtained from experience, (my only guide) of the different soils and composts for the Gardener's use, and if properly attended to, with the other directions in the following Piece, I flatter myself I shall be remembered with esteem, and considered by the Florist and every Lover of the Art of Gardening, as an useful Member of Society.

The order I would recommend for the crops of the Kitchen Garden are as follows, as it answers best in regard to time, and the saving of dung: Let the beds in which your Cabbages and Colliflowers were the last season, be succeeded by the Parsnip and Carrot, as the ground will not only be well dunged but well prepared for them, and as soon as they are taken off, let Cellery be put down; by this management the beds will be cleared of every crop by the 20th of *March*, the season for sowing the small seeds. Others, as soon as their Pease and Bean ground is cleared, plant Cabbages, Brocoli, &c. in rows, but at such distances, as to admit rows of Pease and Beans to be sown between them, by which they are much sheltered and protected when first coming up, and by the time they are ready for landing, the others are removed.

In winter, let such beds as are not employed, be turned up in ridges, for the advantage of the frost, and the better to receive the influence of the atmosphere, which will greatly fertilize your ground, and destroy vermin and weeds.

We

We shall here introduce the several Particulars relative to the Trees in the Fruit Garden, such as Grafting, Budding, Inoculating, and Pruning of Standards, as well as Wall Trees, with the Manner of training them, notwithstanding many of these Particulars are already treated of in the Directory; but the Advantage and Pleasure it must give, to have them in the Order here presented, will, we hope, apologize for any Thing that may be considered as a Repetition. The engraved Representations of the Cuts, (given at the End of these Instructions,) whether of Incision or Amputation, and the Form of the Cion and the Stock, with the different Applications that are to be made of them, will much facilitate the Work, and render the Conception easy; which is one of the Improvements amongst a Number this Edition has in Preference of any other.

APPLE-Tree. The chief care of this tree consists in never shortening any branches unless wood is wanting, for the free use of the knife is not to be allowed; I would recommend to go over the trees three or four times in the growing season, and to pinch off such shoots as are irregular, training others to their places, observing the horizontal position; the distance I would give the branches for large fruit is seven inches, and for the smaller four or five; it is to be observed that the Apple produces its fruit upon studs or spurs*, so that they are never to be cut off.

Apricots. Observe to nail their branches horizontally, displacing all fore-right shoots; this to be repeated as it is often necessary, but on no account stop any shoots in summer. At Michaelmas, when their growth is stopped, loosen all the branches from the wall, to be shortened in proportion to their strength; a vigorous branch to eight or nine inches, a weak one to five or six, which are to

* Studs or Spurs are small branches not exceeding six inches, having buds at their extremities, they proceed from the sides of the larger branches of trees.

xiv INSTRUCTIONS for Pruning, Budding, &c.

be replaced, and nailed in the manner before directed, for upon this care their future good depends.

In the second summer observe the directions of the first, and never shorten any of the shoots in that season, unless to furnish branches, and this not to be done later than April. The third year's management will be nearly the same as the former, but only observe, that as they produce their blossom buds, not only upon the last year's wood, but also upon studs or spurs, which are produced from two years wood, care must be taken of them in the summer management; and in your winter pruning be careful to furnish wood for every part of your tree, carefully cutting off all luxuriant branches, or displacing them as soon as they are produced.

Cherry. Their shoots should never be shortened, for the most of them produce their fruit buds at the extreme part, and it frequently occasions the death of the shoot if they are taken off, for this tree is remarkable for its disagreement with the knife; their branches therefore are to be laid their full length horizontally, and when there is a vacancy to be filled, in *May* stop some strong adjoining branch, this will occasion two or more shoots to be put out for the purpose: Observe at this season all fore-right shoots, are to be pinched off, and not to remain longer, as cutting them in winter would occasion the tree to gum, but when you are doing this, be careful not to rub off the studs or spurs, which are produced upon the two or three years old wood, as from them much fruit may be expected.

Currants produce their fruit upon their former's year wood, and upon small snags from the old wood, so that in pruning them, these snags are to be preserved, and the young shoots shortened to their length, not suffering their shoots to lie too close: Never cut their snags, as from them the fruit is produced.

Cions or *Grafts*, are shoots or buds * taken from a tree in order to propagate its species, and their value is,

* Buds or Eyes, are that swelling on the tree from whence proceed the young leaves or blossoms, the latter of which appear more swoln than the other, which is necessary to be observed in pruning. that

that they will always retain the property of the tree from whence they are taken, how different soever the stock (which in time will be the stem or trunk of the tree) may be; and this excellence is attributed to its receiving the natural juices of the Earth in a more refined state, than if they were immediately in the ground, living as it were on coarse diet; and it is to be observed that they are to be of the former year's growth for grafting and no older, taken from branches in a healthful state that have been laid horizontally; that is in straight lines, every where at the same distance from the surface of your border, but for Inoculation, the bud of the present year's growth must be taken. See p. xxiii.

Espaliers, are hedges of fruit-trees, which are regularly trained up flat on lattices of wood, to inclose the quarters of gardens. The Apple-trees most proper for the purpose are the Golden Pippin, Nonpareil, Rennette, Grise, Aromatick Ruffet, Pile's Ruffet; of Pears, the summer and autumn fruit, for some of the Winter Pears seldom succeed well in *Espaliers*. If planted in soils that are strong and moist, these trees should be upon Quince stocks, but if dry, upon free stocks. The distance from each other must be according to the growth of the tree, which should be well considered before planting. Pears on free stocks should be never less than thirty-one feet for moderate growing trees; but the vigorous shooters the space of forty feet should be given them, especially in strong soils. The Pears I would recommend, are the *Fargonelle*, *Blanquette*, *Holland Burgamot*, *Summer Benelie*, *Hamden's Burgamot*, *Poire du Prince*, *Autumn Burgamot*, *L'Ambrette*, *Gros Rouffellet*, *Chaumontelle*, *Beurre du Roy*, *Le Marquis*, *Cressane*. Observe that if the hard baking Pears are grafted upon Quince stocks, the fruit will be stony, but the melting Pear will be improved by it, provided they are planted in a strong soil, but if the soil be dry and gravelly they will not be proper.

This is to be observed that when trees have been injudiciously planted, if the trunks are healthy and good, to dig up two or three, leaving every third or fourth in order; they may be at the distances before mentioned, the branches of which are to be laid horizontally, but such as will not comply with this direction, I advise to be cut down near the stem, from whence new shoots will be soon

xvi INSTRUCTIONS for Pruning, Budding, &c.

soon produced, for the wall or *Espalier*: But should the fruit not be approved of, the young branches may be budded the same summer, or grafted the following spring, which will come into fruit much sooner than perhaps is expected, for one of these old trees thus managed, will in three years produce more fruit, than a new one will in ten, especially if the soil be improved.

Fig-Tree. The season for pruning this tree is in *August*, as the branches are not then in full sap, so that the bleeding will be the less: The branches are not to be shortened, as the fruit is produced at the upper part of the former year's shoots, and cutting the branches is apt to make them decay; when the branches are too close, cut out the naked branches to the bottom, leaving those which are best furnished with lateral branches, at a proper distance from each other, which should not be nearer than a foot, and should they be well furnished with lateral branches, let them be laid four or five inches farther asunder. Observe these trees are to be stripped of all autumnal Figs, and the sooner this is done the better, and if the buds at the extremity of the shoots are rubbed off with the finger, it will cause them to put out a greater crop of fruit in the spring; this will enable the young shoots the better to resist the cold; but the severity of some seasons being too great for these tender shoots, their upper parts will be killed, for a considerable length downwards; when this happens let the decayed part of the shoot be cut away: It is chiefly from the uppermost joints of the shoots the fruit is produced, therefore as many of the short lateral branches should be preserved, as possible, not only for this purpose, but to furnish the lower part of the tree with wood.

Gooseberry. In order to have their fruit in perfection you must use the knife, by shortening the strong shoots to about ten inches, cutting out all irregular branches, and thinning the fruit-bearing branches; when they are too thick, observe always to cut behind a leaf bud, and dig the ground about them once a year, and every second bestow a little dung on them, this will greatly improve their fruit, which are not despicable.

Grafting, is the taking a shoot from one tree, to insert into another; this by some is called incision, to distinguish

tinguish it from inoculation; from which it differs, by performing the operation before the sap has risen in a high degree; the shoot taken for this purpose is called the Cion, or Graft, the best are, the shoots of a former year, to be taken from trees in vigour, whose joints are compact and close, and from lateral or horizontal branches, to be cut from the tree, before the buds begin to swell, which is generally three weeks or a month before the season for grafting; therefore as soon as the Cions are cut, they should be laid in the ground with the cut downwards, burying them half their length, covering their tops with dry litter, and if a small joint of the former year's wood is cut off with them, they will keep the better, and if they are to be carried to a distance, they must be put in clay, or wrapped up in moss.

For the operation, you must be provided with the following instruments; 1. A small hand saw to cut off the heads of stocks, on which the Cion is to be grafted. 2. A knife with a thick back, to make clefts in the stocks. 3. A sharp grafting-knife, with a flat handle somewhat like an ivory paper cutter, but narrower, this is to raise the bark from the wood, which is to be closed on the Cion. 4. A grafting chissel with a small mallet. 5. Strings of bass matting or woollen yarn, the matting if laid in water some time before, will make it better for use. 6. A quantity of compost to be thus prepared; take some strong fat loam, also some stonehorse dung to break into the loam, with a little tanner's hair, this will add to its binding quality, as salt will to its moisture, so as to prevent it cracking in dry weather, these are to be well worked together with water, as you make mortar; and to be repeated several days: this composition is not to be exposed to the frost or drying winds, and the more it is wrought the better.

The four ways of performing this operation are as follow:

1. *Rind-grafting*, called shoulder-grafting, proper for large trees, and by some called crown-grafting, as the grafts are set in the form of a circle or crown; the end of *March* or the beginning of *April*, is the proper time. This method is seldom practised but on large trees, whose heads or a large branch are to be cut off horizontally, and

xviii INSTRUCTIONS for Pruning, Budding, &c.

and two or four cions, according to the size of them, are put in between the wood and the bark, which may be opened and raised as in inoculation, that is, by first giving the bark an upright cut, to the depth of a little more than two inches, to terminate in the horizontal just made, then to be raised on each side with the thin end of your budding knife, as is represented by figure 3 at *b, b*, then the cion is to be inserted, first sloping it to the length of two inches, to terminate in the bark, and to be set off with a shoulder at the thick part of the slope, to rest on the stock, as represented at *a*, figure 1; over this cion the bark which was raised on the stock, is to be gently closed and pressed, and thus to proceed according to the number of cions you want to graft; but when the bark will not rise, the operation must be performed after the manner of Whip or Tongue grafting, as represented by the figures 2, 7, 8 and 10, to which we refer, having been very particular in our directions for performing it, as it is the most useful. When all is smoothed up, and secured by a ligature, the crown of the stock is to be well clayed, and worked so as to terminate in a point to carry off the rain, leaving the eyes of the cions uncovered; the difficulty of preserving these grafts, though of some years standing, has put this method out of use.

2. *Cleft or slit grafting*, called *Stock*, proper for trees from one to two inches diameter, to be performed in *March*. This grafting is practised on the stocks of trees of the smaller size, and may be used with success, where the rind of the stock is not too thick, whereby the inner bark of the cion may be prevented joining; this should be performed on stocks or branches more than an inch diameter, after this manner; the head of the stock, &c. is to be cut off with a slope, as at figure 11 *r, s*, and a slit made the contrary way, (*a*) in the top of the slope, deep enough to receive the cion, which is to be cut in the form of a wedge, as represented by figure 12. tapering to the length of two inches, terminating very thin; and in setting the cion into the slit of the stock, there must be great care taken to join the rind of the cion with the rind of the stock; this will be best done by an upright position, for by it the greatest length will be given for

for the rinds of the cion and stock to join each other, and this to be observed as a general rule, that, when the surface of the cions is of a less diameter than the surface of the stocks, the former are to be placed on one side, in order that the bark of each may meet in as many points as possible, for on their meeting and well uniting the success of the operation depends; when the stocks are not strong, it will be proper to bind them with strings of bass matting, to prevent the slit of the stock from opening; then to be elayed to prevent the admission of air, leaving only the eyes of the cions above the clay for shooting.

3. *Whip or Tongue grafting*, proper for stocks of an inch and half diameter or less, which is most in use, as being most effectual. This is performed by taking a shoot of the last year's growth, to be cut to a length so as to have three or four eyes; this is called the cion, (figure 9) and is to be cut sloping on one side, to the length of two inches downwards, terminating in the rind, leaving the surface of the cut quite smooth; then raise a tongue on the upper part of this surface inclining downwards, as at *q*, this is intended to fall into a catch, which is to be raised the contrary way on the stock to receive it, (see figures 7 *n* and 8 *o*,). The stock is now to be prepared, by cutting off the head, sloping upwards, (fig. 7, *k l*,) but to slope no more than in common cutting; then take a slice off the side of the stock, in a contrary direction to the slope you have just made on the cion, to the length of it, terminating in the lower edge of the sloping cut, (*k l*,) you just made on the stock, and to a surface that will answer to that made on the cion, so that when they are placed on each other, they will touch in every point, and the edges of their rinds or bark exactly meet; then you are to raise the catch at (*n*) before-mentioned, to receive the tongue of the cion; and for the distance and depth, you must take your direction from that on the cion, that the planes may meet (as in figure 10) each other with the exactness just mentioned; this will keep them steady for tying with the bass strings, with which they are to be secured; but when the cion has a narrower surface than the stock, it is to be placed on one side, that the rinds may meet in as great

xx INSTRUCTIONS for Pruning, Budding, &c.

great an extent as possible, then to be tyed and clayed, observing to let the bud appear.

4. *Grafting by Approach*, called *ablation*, or *inarching*: This is to be performed when the stock you graft on, and the tree from which you graft, stand near each other, to be performed in *April*, in use for *Jessamines*, *Oranges*, and tender exotic trees, (figure 15) and thus executed: Take the branch you would inarch, and having fixed on the stock to which you intend to join it, pare away the rind and wood on one side, about two inches in length, doing the same with the stock, so that both may the better unite to each other, and for the better effecting this, cut a tongue, as represented by figure 15 at y, upwards in the graft, and make a slit in the stock downwards, as was directed in the Whip grafting, to admit it, to prevent their slipping, and when these are placed very exactly one on the other, they are to be secured with the bandage already mentioned, over which the grafting clay is to be laid, to exclude the air, thus to remain for four months, staking the graft to keep it steady, which is quite necessary; after the time mentioned, the graft may be cut from the mother tree, observing to slope it off close to the stock, the joined part to be covered again with the clay.

The next thing that is to be considered for the success of this practice, is to make choice of such a kind of tree as will unite and prosper after it is performed; so that care must be taken to unite such only as are of the same genus or kind, that is, such whose fruit and flower will agree: All nut-bearers will graft on each other, the different kinds of plum-bearing trees, amongst which are included the *Almond*, *Peach*, *Nectarine*, *Apricot*, &c. as they agree in general characters, by which they are distinguished; and as many of these trees will discharge quantities of gum when deeply cut, they had better have this operation performed, after the manner of inoculation; *Peaches* and *Nectarines* are of this sort.

Such trees as bear cones will agree, though one should annually cast its leaves, and not the other; and such trees as abound with rosin, must be grafted by approach, as also the *Laurel* on the *Cherry*, and the *Cherry* on the *Laurel*. All mast-bearing trees will take on each other,
and

and such as have a soft wood may be performed in the common way ; but such as are of a firm texture and slow growth, by approach.

It is to this invention, we are indebted for the number of foreign trees, of the southern climates ; for, by budding and grafting them on more hardy stocks, we have, in a manner, naturalized them to our clime. These cions which have been grafted on the different trees, do not become one body with them, but as it were, strike root in their stocks, and are so furnished with fibres, as to convey to themselves their nourishment, but in a state more pure, than if they drew their support from the earth ; this accounts for the cions retaining the nature and qualities of the trees from which they are taken. To this practice it is said mankind was led by a bird discharging the seed of a tree into the trunk of another, where it received a moisture and other sustenance suitable to its growth ; it became a tree, and of a different species. This the working mind of Man improved on.

Gravel ; the use of this for walks of gardens makes it necessary to give some directions for that purpose. This work is to be begun in *March* ; and when the gravel is of such a quality as will not bind, take to one load of strong loam, two or three of gravel, to be well mixed and moistened for use : In making of a walk five feet wide, one inch is sufficient for it to rise in the centre, and a walk of ten feet is to rise two inches ; this will give the rain a sufficient fall. Six or eight inches depth of gravel may do for the covering of a walk, but a foot is sufficient, and you are to observe that according to the soil of your walk, you are to preserve it for coating, which is generally by first putting down a good layer of rough stones. The level of the ground must be well considered, before you begin to make your walks, in order to give them that descent which will best carry off the water ; and when the soil is remarkably wet, land drains are necessary. To destroy worms, which are very prejudicial to gravelled and grass walks, let them be well watered, in which water walnut leaves have been steeped, this will force them out, so that you may with ease kill them ; but the best provision against this evil, is first to lay down a good coat of lime rubbish ; and in order
to

xxii INSTRUCTIONS for Pruning, Budding, &c.

to keep your walks clear of weeds and moss, turn them up in the winter.

Hedges. Their use and ornament to the garden are so great, that we shall give some necessary directions about them; for inclosures the quick is most frequently planted, which should not be bigger than geese quills, to be cut down to within four or five inches of the ground when planted, and taken fresh from the nursery, to be smooth, streight, and well rooted; if to the hedge there is to be a ditch, I would advise it to be six feet wide at top, four and half at bottom, and three deep, then there will be a proper inclination given to the banks, to support themselves against frosts; if without a ditch, the quicks are to be planted in two rows, almost perpendicular, at a foot distance, in the quincunx order, (see fig. 17) that is, four quicks are to be set in the opposite corners of a square, and one in the middle; the method of planting on sloping banks in two rows one above the other, is by no means right, as the moisture goes off too quickly to afford the plantation nourishment; I advise the plantations to be made with the sets on the top of the bank, where if they are kept clear from weeds, they will grow more in one year, than those on the sides in three; when hedges come to the growth of eight and nine years they should be plashed, that is, laid down, avoiding the extreme of laying them too low or thick; the season for this work is in *October* and *February*.

The *Crab* and *black Thorn*, both make excellent hedges, but are to be raised from seed, and the first from the small wild *Crab*, to be sown early in *January*. The *Holly* makes the most beautiful hedge, but is slow in its growth, and like the last is best raised from seed, which must be a year gathered before it is fit for use, to be managed thus: The *Berries*, which are to be gathered about *Christmas*, are to be put into a large flower pot, mixing some sand with them, then dig holes in the ground, into these the pots must be sunk, covering them to a foot depth, where they are to remain until *October*, then the *Berries* are to be taken out and sown where they are to stand, the ground being well trenched and cleared, &c. then two drills are to be made at about a foot distance from each other, and about two inches deep, into which the

the seeds are to be scattered pretty close, to provide for failures, and by this management the hedges will come up thick at the bottom, when you may promise yourself success, provided you are careful of them and keep them clean; this hedge, when in growth for clipping, should be sheared in *May* and *August*, but for a common fence once a year will do. If a hedge is to be made by plants of holly, let the ground be well trenched. The time for setting plants is in *October*, unless the ground is very wet; *March* then is the proper season. Plants that have been twice removed, and from an inferior soil, will answer best, provided they are raised with a ball of earth, and protected from the frost.

Inoculating, or *Budding*, is always performed when the trees are in full sap; in this it differs from grafting. This is commonly practised upon all sorts of stone fruit, in particular, such as *Peaches*, *Nectarines*, *Cherries*, *Plums*, &c. as also *Oranges* and *Jessamines*, and is preferable to any other kind of grafting, for most sort of tender fruits. You must be first provided with a budding knife in good order, the end of which terminates in the form of a paper cutter of ivory, but narrower, with which you are to raise the bark of the stock to admit the bud, and some bals matting soaked in water to increase its strength; then, having taken off the cuttings from the trees you would propagate, choose a smooth part of the stock, about five or six inches above the surface of the ground, if designed for dwarfs, but if for standards, they should be budded six feet above ground; (see fig. 3) then with your knife make an horizontal cut across the rind of the stock (*f*), and from the middle of that cut make a slit downwards about two inches in length (*g*), so that it may be in the form of a T, not cutting so deep as to wound the wood of the stock; then take the shoot of the former year's growth, cut off the leaf, leaving the foot-stalk as represented in figure 6, make a cross cut about half an inch above the eye or bud, and with your knife slit off the bud, with part of the wood to it, in the form of an escutcheon, a figure in heraldry, which will be in form as represented by figure 4 (*b*, the wood as it appears in the cut); this done, you must with your knife raise up that part of the wood (*b*) which was taken

c

with

xxiv INSTRUCTIONS for Pruning, Budding, &c.

with the bud, observing whether the eye of the bud continues to the rind or not, (for all those buds which lose their eyes in stripping, should not be used) then gently raise the bark *bb* of figure 3 where the cross incision was made at *f*, with the flat haft of your knife, separating the bark from the wood, down the cut *g*, to place the bud in, to incline upwards, observing to lay the bark (which you just now raised) smooth on the stock, covering the cion, except where the shoot is to be made: Then you must bind them closely round with the bass mat, beginning at the under part of the slit, and so proceed to the top, taking care not to bind up the eye of the bud.

N. B. When the bud (fig. 6.) is inserted in the slit (*g*) of figure 3, you are to slide it between the wood and the bark; so as the point (*b*) will come down pretty low in the slit (*g*), and whatever of the bud remains above the horizontal cut (*f*) is to be cut off in the same direction, before you bind them.

In about three weeks or a month you will perceive such as have succeeded, by their remaining fresh and plump, when the bandage may be loosened, or nicked with a knife to give room, which, if not done in time, may force off the bud, as it will be swelling. The *March* following you must cut off the stock about three inches above the bud, as represented by the curve line at *i*, in figure 3, sloping it, that the wet may pass off; to this part of the stock it will be proper to secure the shoot which the bud made this summer, to prevent its being blown off; but this part of the stock must not continue longer than one year, when it is to be cut off close above the bud.

The season for inoculating is from the middle of *June* until the middle of *August*, and such trees as are ready, may be known by trying whether their buds will come off well from the wood, but the most general rule is, when you observe the buds formed at the extremity of the same year's shoots, it shews they have finished their spring growth.

The first tree that is generally inoculated is the *Apricot*, and the last the *Orange*; and at any time when this work is performing, cloudy weather is the best, (but not when

when it rains) as the juices are not then too quickly exhaled, which is occasioned by performing it when the rays of the sun are strong; nor should these cuttings be taken too long from the trees before using, that they may retain as much as possible their natural moisture; so that when they are taken to a distance, a tin instrument is to be provided with sockets, about ten inches long, to be filled with water, covering their tops with a lid to exclude the air, but pierced in some places to carry off the exhalations; in these the cuttings are to be set upright, with the cut down, carefully keeping the buds from being immersed in the water; and it is to be observed, that some tender trees require the little wood at the extremity of the shoot to be preserved, which in others is directed to be cut off.

Layers; by these many trees, &c. are propagated, which otherwise we could not have. Laying of layers is thus performed: the one year old shoots near the ground, are to be chosen; from them all side shoots are to be taken, and such as strike root with difficulty, are to have a slit made upwards at a joint, and in that part which is laid under the earth, or a piece of wire twisted in the same part, to check the mounting sap, which will hasten their striking root; before the laying down of the layers, let the earth be well dug, and the clods broken, then the shoots are to be laid, five or six inches under the surface of the earth, and secured by pegs, leaving the end of the shoots, five or six inches above ground, in an erect position. The season for laying hardy trees, that shed their leaves, is in *October*, but such as are tender, in *March*; for *Ever-greens*, *July* or *August*; and the summer season is the best time, for small plants; to have layers from high standards, they must have earth raised about them.

Nectarine; for its management, see *Peach*.

Northern Aspect. This is the least favourable in these climes, but however, it may be made a convenience, in retarding the ripening of fruits: The *Morella Cherry* for preserving; red and white *Currants*, and some summer *Pears*, planted in this aspect, continue long in bearing and ripening.

xxvi INSTRUCTIONS for Pruning, Budding, &c.

Nursery, is the place set apart, for raising and propagating, of all sorts of trees, and plants, to supply the garden, and other plantations.

Peaches. These trees are to be equally furnished with bearing wood, avoiding to lay them too close to each other; and it must be observed, that as they produce their fruit upon young wood, either of the preceding year, or at most, from two years old wood, (for after that they will not bear) the branches should be shortened to occasion a produce of new shoots every year, and in every part of the tree, observing always to cut behind a wood bud, as I shall direct more particularly; the time for this is in the months of *April*, *May* and *June*, when foreright shoots must be pinched off, (see *a*, fig. 18) the luxuriant branches checked by pinching, and new shoots produced, where wanting, by stopping the sap in the neighbouring branches; the shoots produced this season, will have time to ripen against autumn, whereas those produced after *June*, will be crude and pithy, consequently of no value.

In order to keep these trees in a proper state, they must have more attendance than the summer and winter pruning, for you must go over them in the month of *May*, to pinch off all irregular shoots, and to train the branches to the wall, that each may have an equal advantage of sun and air, therefore the oftener these trees are examined from the time they first begin to shoot until autumn, the better will be their condition for fruiting; by this much cutting is prevented in the winter, which but badly agrees with this tree, as it is of a soft texture, and does not speedily heal of its wounds, so as to be out of danger, when the severe weather sets in.

The distance the branches are to be laid against the wall, must be according to the size of the fruit, and depth of their leaf, as the leaves of one branch should not overhang another. This observation will hold good in respect to all trees against walls.

The branches being trained as directed in the spring and summer, we are come now to the winter pruning, which is usually performed in *February* or *March*, but the best season is in *October*, as the wounds will then have sufficient

INSTRUCTIONS for Pruning, Budding, &c. xxvii

sufficient time to heal, before the frost sets in; and in the spring all the efforts made by the motion of the sap, will not be to any unnecessary purpose, as now no part of the tree is to be cut off.

October I have mentioned as the best time for winter pruning; in doing of which you must observe to cut behind a wood bud; this you may distinguish from the blossom bud which is shorter, rounder, and more swoln than the wood bud; for if the shoot does not terminate with a leading bud, it is apt to die down to the next. The length of the shoots, in a healthy strong tree, should be ten inches or more, but in those that are weak, not more than six; yet in this you must be guided by the position of the leading bud, as it is better to have a shoot three or four inches longer or shorter, provided it terminates with one of these buds; it is absolutely necessary for the future welfare of the tree, you should cut out all weak shoots, though many blossom buds may appear on them.

In nailing the shoots to the wall keep the horizontal position, as represented by fig. 18, placing the branches at such distances as will prevent their being overshadowed with their leaves, as has been directed.

Peach, the most excellent of these are such as have their fruit with a firm flesh; the skin thin, of a deep bright red next the sun, and of a yellowish cast next the wall, and the flesh of a yellowish colour, full of juice.

Pear-Trees. They generally produce their blossom buds on the extremity of the last year's shoots; so they are not to be cut off; this also will prevent the evil of filling the tree with too much wood. Pears likewise produce their fruit upon studs or spurs, which are emitted from branches three or four years old, so little more is to be done with them, than in the summer to train their shoots, and to displace fore-right and luxuriant branches, that the fruit may be well exposed to the sun: the season for this work is any time after the fruit is gathered until *March*, but the sooner after the fruit is gathered, the better.

Plum-Trees; they not only produce their fruit upon the last year's wood, but also upon studs or spurs of ma-

xxviii INSTRUCTIONS for Pruning, Budding, &c.

ny years growth; so that the safest method to be taken with these trees, is to lay their shoots horizontally (see fig. 18), and at such a distance, branch from branch, as will be sufficient for the well ripening of their fruit. When wood is wanted to fill the walls, pinch the shoots in *May*, and during the growing season, pinch off all foreright shoots, (see fig. 18, *a*), and such as are preserved must be regularly trained; the Plum-tree will not allow the knife, on account of the quantity of gum that is emitted on such occasions.

Pruning. There is not any part of gardening of more general use, nor is there any wherein there are more pretenders, which must ever be the case, when men take up professions from custom, whose principles are only to be found in study, practice, and a careful pursuit of nature, in that variety for which she is so remarkable. In the science of gardening or vegetation, many think it is only requisite to be provided with a good knife, and that a liberal use of it displays their knowledge, which should be confined to rendering trees more lasting, ornamental, and fruitful, to obtain which a contrary practice is necessary, as will appear in our directions.

1. To contribute to the healthful state of a tree all useless branches should be taken off in a proper season, that the sap may not be uselessly expended.

2. To render a tree ornamental is to dispose its branches according to their strength and size, having a regard to the largeness of the leaf and fruit, that they may be properly distanced to receive the advantage of the sun and air, by which not any confusion will appear, consequently they will be rendered ornamental.

3. To give a tree fruitfulness is to dispose of her luxuries so as to confine all her efforts of vegetation to the thing necessary, which will give a fair, well grown, and well flavoured fruit, and in such abundance as is consistent with her strength, without exhausting it.

Thus far have we proceeded on the general principles of this science, which we will now lead into practice; but first make the following remark.

Some think their trees have all the necessary assistance given them, if during the summer they are kept to the wall,

wall, and in winter have the discipline of a *Mow-bawk*, for such I call these amputating gardeners: But in this they are much mistaken, as the spring is the season for our attention, when their growth is vigorous: Now foreright shoots are to be pinched off (see a figure 18) (always observing never to use the knife when your fingers can supply its place) good wood is to be provided, and all useless branches to be displaced, whereby nature will not be employed to any useless purpose. Others there are who give their trees the summer pruning, but neglect them in *April* and *May*, when their shoots are produced, and only survey them at midsummer, nailing up their branches, except fore-right shoots, which they cut off with other parts of the tree, and perhaps such to whom the knife is death, by emitting its vitals, in bleeding some, and forcing others to discharge their gums, not distinguishing when the use of the knife is allowable. Thus far we have proceeded to expose these ill practices, in hopes they will be corrected, and to rouse the gentleman and the gardener to attend to nature, whose pursuits we have made the principles of our science; these are given in treating of each particular tree, ranged in alphabetical order.

Rasberry. The season for dressing them is *October*, when all old wood that produced fruit the preceding summer, should be cut down below the surface of the ground, and the young shoots of the same year, must be shortened to about three feet in length, and the spaces between the rows should be well dug to encourage their growth, and a little rotten dung would add much to their vigour, and encrease the largeness of the fruit; in summer care must be taken to keep them clear of weeds, and the plantation should be renewed every three or four years.

Standards. They should never have their branches shortened, unless where they are very luxuriant, or grow too much on one side, for proportion should be preserved; but this cutting is only allowable to Pears and Apples, as the stone-fruit-trees would gum and decay by amputation; but when this is absolutely necessary for the latter, you must remedy the evil by stopping the gum, or pinching the shoots in spring, before they obtain too

xxx INSTRUCTIONS for Pruning, Budding, &c.

much vigour ; this will occasion them to push out side branches, whereby the sap will be diverted from ascending too fast to the leading branches ; but it must be cautiously done.

In taking off decayed branches care must be taken to take them off at the place where they are produced, otherwise the infection will extend itself ; and should the branch be large, which is necessary to be cut away, let the part be carefully smoothed, laying over the wound a plaister of grafting clay. Such branches as cross each other should be removed, to prevent a canker, which otherwise would be occasioned by their rubbing each other ; and it must be observed in old trees, particularly the Apple, that from the trunk, young shoots rise with great vigour into the head, these should be cut away, as the admission of sun and air is quite necessary both for the preservation of the tree, and the ripening of the fruit.

Strawberries. They love a gentle hazelly loam, that is moist, which is better for them than a light rich one, they are not to be treated with dung, as it only occasions them to grow luxuriant. *October* is the best season for planting them, for such as are moved in spring will require watering, if the weather should be dry ; the ground is usually laid in beds of four feet broad, with paths of two feet between them, these should have the roots of weeds well cleared out ; then let four lines be drawn in each bed at a foot distance, this will leave six inches space on each side, between the outside rows and the paths ; let the plants be set at a foot distance from each other in the rows, in quincunx order, (see fig. 17), closing the earth on the plants, which are to be watered, unless rain descends ; the distance here directed is for the wood *Strawberry*, giving those of a larger growth, viz. the *Scarlet* and *Hautboy*, fifteen inches distance, and of these but three rows in a bed, the *Cbili* are to have but two, and at two feet distance. In your choice of plants be careful that they are taken from beds that have been well attended and fruitful, the off-sets which stand nearest the mother-plant, are to be chosen for new plantations ; the wood *Strawberry* is best when taken into the garden

garden from its natural state; the next care to be taken of your plantation, is to defend the roots from the frost, which may be effectually done, by laying tanner's bark over the surface of the beds; this care must not be omitted with the *Cbili*, otherwise you may lose them: Sawdust, or sea-coal ashes may be used, when the bark is not to be had. In summer you must keep them clear of weeds and runners, which should be removed as fast as they appear; if this direction is attended to, you may promise yourself fine large fruit; and as the old plants are the bearers, you must keep them clear of suckers, which would otherwise deprive them of their nourishment. A plantation will not hold longer than three years, therefore a provision should be made, by planting other beds with the suckers that are drawn from next the mother plant, to be set in fresh ground.

In autumn you are again to take off what runners have been produced, with decayed leaves and weeds, digging up the paths, where the weeds are to be buried, and if some fresh earth is laid over the surface between the plants, this will much strengthen them against the following spring; and after this, if some rotten tanner's bark is also made use of in the same way, it will be better.

In the spring following, as soon as the frosts are over, the surface of the ground is to be forked with a narrow fork, to loosen the earth, and break the clods; and in this operation the bark being worked in, will be of service, especially in strong ground; and to have this fruit in the highest elegance, about the end of *March* or the beginning of *April*, I would advise the surface to be covered with moss, which will answer the purpose not only of keeping the beds moist, but out of danger of having the earth washed into the fruit by heavy rains.

The *Cbili* is found to succeed best in very strong brick earth, approaching near to clay.

Stocks, is a term usually given to trees which are to be grafted, and are either old trees, whose fruits are to be changed, or young ones that have been raised in nurseries, which in the former must be on branches, and on such as are young, healthy, and well situated, and have the

xxxii INSTRUCTIONS for Pruning, Budding, &c.

the bark smooth; when on walls and espaliers, it will be proper to give them six or eight grafts, but the size of the tree must determine this; for standards four or six will be sufficient.

When stocks are chose that are young, let them be such as have been raised from the seed; (these are called the Crab or free stock) and once or twice transplanted, which should be at proper distances for the well growing of their wood, this will contribute to make them successful; there are others which are raised from cuttings and layers of trees; observe that suckers are never to be used. Of the variety of stocks that are used, the following are the principal and their properties. 1. The true Crab (which we will call so, to distinguish it from the variety) is that which is raised from seed of the kind of which verjuice is made; it is valuable for the regularity of its growth, keeping the fruit to its natural size, true colour, flavour, and of a longer duration. 2. Free stocks, or Crabs, are such as are raised from all kinds of seed promiscuously taken, they are recommended for a stiff soil, and produce a larger fruit than the true Crab, but not with that firmness and flavour. 3. The *Dutch Creeper*, designed to stint the growth of trees, and keep them within compass for *Dwarfs* or *Espaliers*. 4. *Paradise stocks*, this is a tree of a very humble growth, and fitted for such as are kept in pots, but is not durable. 5. *Dutch Paradise stock*, this kind comes soon into fruit, does not grow too luxuriant, is durable, and is recommended for *Espaliers*. 6. *Quince*, this tree bears a small fruit resembling an *Apple*, and is much recommended for stocks, for the soft melting *Pear*, on a strong moist soil.

Stocks which are used for the particular kinds of fruit, are; for the *Peach* and *Nectarine*, such as are raised from the stones of the *Muscle* and white *Pear Plum*.—*Pears* on stocks raised from the kernels of the same fruit, but for the soft melting kind *Quince* stocks are preferable.—*Apples*, on Crabs, &c. as above.—*Cherries* on stocks raised from stones, of the common black, or wild honey *Cherry*; some of late have budded, &c. on stocks of the *Cornish*, *Morello*, these they say will render the tree more fruitful,

INSTRUCTIONS for Pruning, Budding, &c. xxxiii

ful, and less luxuriant; these stocks having the same effect on the *Cherry*, the Paradise stock has on the *Apple*. — *Plums* on stocks of any of the free growing sort, which will answer for *Apricots*. — *Peaches*, the tender sort on *Almond* stocks, but those budded on *Apricot* stocks will answer best, and in a dry soil will hold a long time, and are not subject to blight. Some practise the following method in order to have the tender sort of this fruit; they bud the *Plum* stock with the *Apricot*, or some free growing *Peach*, when these have stood a year, they then bud the tender *Peach* upon the shoots; these are called the double worked trees, and is the best expedient for the purpose.

AN
EXPLANATION

Of the different
ENGRAVED REPRESENTATIONS
OF
GRAFTING, BUDDING and INOCULATING,
FOR THE

Clearer Understanding the Manner of performing these
Curious and Useful Parts of GARDENING, so as with
Ease to lead them into Practice.

- | | |
|-------------------------------|-----------------------------|
| I. Rind or Shoulder Grafting. | IV. Grafting by Approach. |
| II. Whip or Tongue Grafting. | V. Inoculation. |
| III. Cleft Grafting. | VI. Directions for Pruning. |

*Rind or Shoulder Grafting, for the Manner of performing
it, see Page xvii.*

N^o I. **T**HE Cion as prepared for Shoulder-grafting,
when the Stock is to have the Bark laid open
as in Inoculation.—*a b*, the length of the sloping Cut
made on the Cion, to the length of two Inches.—*a*,
the shoulder given the Cion, which is to rest on the
Stock, to prevent its descending deeper than necessary.

II. The Cion as cut for Shoulder-grafting, when the
Operation is to be performed after the manner of
Whip-grafting.—*c d*, the length of the Cut to be
made on the Cion, which is to be about two inches.
—*e*, the Tongue raised on the Cion, which is to fall
into a Catch, raised for the purpose on the Stock;
this Tongue is to have the Cut made sloping to the
Shoulder of the Cion.

Inoculation;

Inoculation ; for the Manner of performing it, see page xxiii.

III. The Stock for Inoculation.—*f*, the part on which the horizontal Cut is made in the Rind.—*g*, the perpendicular Cut to the length of two inches to terminate in the horizontal Cut *f*.—*b b*, the sides of the Bark as separated and laid open by the thin end of your Budding-knife.—*i*, the Cut to be made the *March* following, at the distance of three inches from the Bud, to slope upwards on the opposite side on that you made your Incision, in order to carry off the rain that way, which would otherwise prejudice the Bud.

IV. The Cut taken off the Shoot of the one year's Growth, with the Wood in it.

V. The same Cut in the Figure of an Escutcheon, and as it appears when the Wood is taken out of it.—*a*, That part on the other side of the Cion, where the Bud and Leaf are supposed to be placed, from which, should they come off in stripping, or on taking out the Wood, (*b*, in fig. 4) there will appear two small holes, represented by the pops; in this state it is not to be used, but if they remain the bud is to be inserted within the Bark of the Stock raised at *b, b*, over which the Bark is to be laid in its natural State, very smooth.

VI. The side View of the same, shewing the Foot-stalk of the Leaf, cut down to its proper length, protecting the Bud; in this last appearance the Cion is ready for insertion, which it must be under the Bark *b, b*, of No. 3 in a direction along the Cut at *g*, when whatever projects above the horizontal Cut at *f*, is to be cut off in the same direction, and then to be proceeded with, as directed in the Article, Inoculation.

Whip,

Whip, or Tongue-grafting; for the Manner of performing it, see page xix.

VII. The Stock prepared for Whip or Tongue-grafting.

—*k*, the common sloping Cut to be first made.—*l m*, the length of the Cut made in the side of the Stock, continued to two inches, to terminate in the lower part of the sloping Cut *l*,—*n*, the Catch raised in the plane of the side Cut to receive the Tongue of the Cion.

VIII. The Cion of the Whip or Tongue-grafting taken

from a shoot of the last year's growth, with three or four eyes on it.—*a, p*, the length of the Cut which is sloped off to the depth of two inches, terminating in the Rind.—*o*, a side View of the Tongue that is to fall into the Catch, *n*, of the Stock, No. 7.

IX. Shews the flat side of the Slope, in its proper length.

—*q*, the Tongue raised on the Cion, to fall into the Catch *n*, raised on the Stock, No. 7.

X. A Representation of the Stock and Cion as laid together, and joined by the insertion of the Tongue in the Catch at *a*, this secures them for binding with the Bafs Matting. For further Directions see the Article Whip-grafting under the general Directions for Grafting.

Cleft-Grafting, for the Manner of performing it, see page xviii.

XI. The Stock of the Cleft-grafting of one or two inches

Diameter.—*r*, the common sloping Cut first made on the Stock,—*s, t*, the length of the Slit made to receive the Cion, to be a little more than two inches, and made in a contrary direction to the common sloping Cut at *r*, first made on the Stock.

XII. The Cion for the Cleft-grafting, cut tapering on each side, in the form of a wedge, to terminate very thin.--

thin.—*u*, *x*, the length of the sloping Cut on each Side, which must be two inches.

XIII. The Front Representation of the sloping Cut to be made on the Cion, cut for the Cleft-grafting, which is to slope, to the depth of two inches.

XIV. A Representation of the Cion in the Cleft-grafting, set into the stock, whose Rind is to meet very exactly and even with that of the Stock at *a*, for on this *the Success of the Operation depends*; and when the Diameter of the Cion is less than that of the Stock, it is to be placed on one side for the purpose of uniting the Bark of the Cion and Stock, to as great a length, and as much as possible; this care is to be particularly attended to, in the Operation of grafting, for unless the Barks unite, there will not be any communication of the Sap, or that vivifying Liquid, that is appointed by Providence, for the support of the Vegetable World.

Grafting by Approach or Ablation, for the Manner of performing it, see page xx.

XV. A Representation of the Cion and Stock in Grafting by Approach, laid to each other.—*y*, the Tongue and Catch inserted into each other, as practised in Whip-grafting; this keeps the surface of the planes together and steady for binding with the Bafs Matting.

XVI. The sloping Cut that is recommended to be used to Trees in an upright situation, its use is to give the Moisture, whether from Rains or Dew, a quick descent, for by a stagnation they would corrupt and communicate their putrid State to the Tree, so as to occasion a Canker and Mortification.

It may not be improper here to direct the Gardener, that when a side shoot, or a Limb of a Tree is to be taken off, that he leaves the wounded part, whether on a Branch, or the Trunk of the Tree, in a smooth state with no part projecting, to prevent the evil just mentioned, and when the wounds are large, if they were

were besmeared with Tar, or laid over with grafting Clay, it would contribute to the healthful State of the Tree, by not suffering it to discharge any of its juices that way, which should be preserved for its nourishment.

XVII. A Representation of the Quincunx Manner of Planting, which is frequently directed in Gardening; it is in this order that the Peas are to be staked, which are set as recommended in page 218, observing that the Center Rods, Fig. 19, *a, a*, be pretty well bushed and strong; and the others, at *b, b*, at a sufficient distance, not to injure the Peas planted in the ridges represented by the double lines: Others as an improvement on this Practice, plant Peas and Beans alternately, observing such a distance as will admit the conveniently gathering their Fruits. The Advantage that the Quincunx manner of planting gives, is, that whatever is put down in this Order, will have an equal share of nourishment, both from the Air and Soil, as they are every way equidistant from each other.

XVIII. A Representation of a Tree, whose branches are laid horizontally, and are also what are called lateral Branches, as proceeding from the side of the trunk, which are in a contrary direction, to the fore-right shoot at *a*, which proceeds from the front of the stem: Fore-right shoots are often numerous, and are directed to be removed, by pinching them off with your Fingers, for, where these Instruments of Nature will answer the purpose, do not use those of Art, a Knife.—*b*, the inclination to be given the Cuts in taking off branches in pruning; from this inclination the water will be carried off without affecting the wounded part.



THE

PRACTICAL INSTRUCTIONS I N G A R D E N I N G.

PART FIRST.

Of the Kitchen-garden, the Fruits therein, and of the Culture of Kitchen-herbs and Roots.

THE choice of a proper and convenient situation, is the first thing to be considered in laying out a kitchen-garden. The common, and indeed most eligible, situation, is, to have it near the stables and cow-house, for the convenience of wheeling in dung, for if it is at any great distance from the garden, it proves very inconvenient. All kitchen-gardens ought to be walled in. Their figures in general are either regular squares, or oblongs; the last are to be preferred, provided their length be from east to west, for the benefit of the ripening influence of the sun, for the fruits upon the south and south-east walls. They should not only be walled in, but plantations of firs should be made at the distance of 200 yards from the walls, upon the north, the east, and west sides. For a small family, two acres of ground will do; but if for a greater, it should consist of six or eight, with a large reservoir for water in the centre, or south-end, which may, if the proprietor pleases, be so large as to contain a variety of fish. Water for a garden is absolutely necessary, and such only as is soft and well impregnated with the sun's rays, which conduces to vegetation; whereas that taken immediately from springs, acts the contrary, and in many cases totally destroys the plants. The garden should be well exposed to the sun,

B

and

and not overshadowed with trees; nor should any fruit-trees be planted in the quarters, as they in a few years cover the ground, and choak every plant under them. The espaliers, with which the quarters of the garden are to be surrounded, will produce fruit sufficient for any family; as the more delicate grow upon the walls. If the ground slopes a little to the south, the better; for the upper and most exposed part will best answer for early crops, and the lower for the later.

One great article to be considered is the soil, which should be neither too wet nor too dry, but of a middling texture; nor should it be too strong or stubborn, but of a pliable nature, easy to work: if the soil should be strong, it will be necessary to plow or dig it three or four times, to be laid in ridges, in order to have its coherent parts meliorated by the influence of the atmosphere and winter frosts. The best manure for such soil is coal-ashes, and the cleaning of streets or ditches, which have been some time exposed; these will make it light, and fit for vegetation sooner than any other manure whatever; and the more abundant the ashes, the better, when the soil is cold. Where these manures are wanting, sea-sand, or rotten wood, are proper for improving stiff soils. On the other hand, if the soil is sandy, and of a hot nature, not any manure is so proper as cow's dung, or marle well dissolved, by laying it on the surface of the earth for twelve months, and then to be plowed or dug in, provided in that time its grosser particles are sufficiently pulverized. Horse-dung will not answer here, as it will burn and destroy the crops, upon their first appearance. The soil of the garden should be two and a half, or three feet deep, which depth is absolutely necessary, to bring most esculent plants to perfection, such as Carrots, Parsnips, French Turnips, Beets, and many others, which send their roots to a considerable depth.

If you chuse to have your walling more extensive, you may divide your garden, with one or two walls through the middle, according to its size and extent. These walls should front the south, with one or two points to the east, running from east to west, the whole length



length of the garden, with an opening in the middle, the breadth of the centre walk, and the same at each end, the breadth of the side-walks. The walk in the middle should be double the breadth of those on the sides; which last have generally a border equal to their breadth.

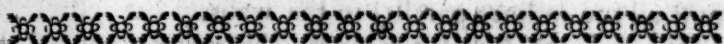
According to the situation and exposure you make choice of for walls, the ground is to be disposed of; and consequently the walk in the middle, the cross walks, the espaliers for fruit, and the borders upon which gooseberries and currants are planted through the quarters, as they must all run in lines parallel to the walls.

The best exposure for walls in this country, is what I have just recommended, for the advantage of the morning sun; notwithstanding it is said, that by turning them the least point to the east, the fruit will suffer by blights; but, from experience, I have found more blights from a south or south-west aspect, than I ever met with from one turned a point or two to the east of due south; and I am convinced, that with the benefit of the morning sun and this exposure, they will be better protected from the south-west, and west winds, which are remarkably prejudicial to fruit in this country. In a situation near the eastern sea-coasts, I should chuse a due south aspect for my best walls, as the east winds, (from the vicinity of the great Eastern Ocean) are really dangerous to all fruits. But in a situation more remote from the sea, I should make choice of the aspect first recommended.

Having laid out your first wall, with a south aspect, inclining one or two points to the east, this wall directs the position of the others, with which they are to form right angles. I begin with the walls, as they are the outlines of our work, and which I would have executed without any indentions or curvatures, as practised by some, under pretence of well ripening the fruit; nor do I in the least approve of erecting arches in the lower parts of the wall, in order to give a greater liberty of growth to such trees as are planted opposite to them; as such fibres as go to the rear become rancid from the juices they meet with, which must ever be in a bad state, from their being deprived by the wall of the influence of the sun; and the consequence of this practice is, that the fruit falls as

4 THE GARDENER'S NEW DIRECTOR.

soon as it acquires its magnitude, being filled with undigested matter, over which (in this state) the sun has not any influence to meliorate. And as to circular or angular walls, when the wind beats on them, it is reverberated upon the trees in a colder state, this retards the fruit ripening, so that it becomes ill-tasted. I am so far convinced of the ill effects of these experiments, that I would advise the building of plain walls, either of brick or stone, or of stone lined with brick, as they shall most suit the convenience and taste of the proprietors.



Directions for building Walls for forcing Fruits.

THE first wall I would erect, is that fronting the south. This I would chuse to have for forcing Vines, which, without artificial heat, will not ripen in this country, and this I would more particularly use for that purpose, in preference to any centre wall, as the flues and ovens which are necessary, will not have any appearance in the garden, nor will it be incommoded by the fæces and ashes, which should be avoided, where pleasure and taste are the chief objects to be regarded.

In the middle of this wall a gate is to be erected, twenty feet wide, corresponding with the cross walk, so that on each side of it there will be 150 feet of wall; and as I write for a grand design, this plan may be suited to smaller, in their respective proportions. In this design, 300 feet of hot walling is intended, which supposes, that 100 feet will be employed every year, whilst the other 200 are at rest to recruit; for continual forcing of the same space of wall will not answer; as the trees would become sickly and weak, and at length bear no fruit; but when allowed two years to rest, they recover their former vigour, and bring plentiful crops of good fruit.

The foundation of these walls should be four feet deep in the ground, built of good lime and stone, and three feet broad at bottom, to be carried to the same thickness to half a foot above the surface, in order to support the vacuity of the flues above, otherwise a less
breadth

breadth of foundation might make the flues settle unequally, and so spoil the design. At the height of half a foot above the surface of the ground must be the first flue, that there may be no damps, either below, or by the side of the flue, and that the earth in the border may not dry too much, by the flues being below the surface of the border; the depth of this flue should be two feet and a half, the breadth one foot, to be covered with two rows of bricks 15 inches long, and of the ordinary breadth. The advantage of having two rows of bricks, is, that the iron hooks, which are to be placed within three feet of each other, and intended to support the trelaces, to which the branches of the Vines must be fixed, are firmer when they have two ranges of bricks to hold by, than when they have but one. The trelace projects three inches from the wall, and these hooks must be fixed in the back-wall, and laid close under the brick-rows that cover the flues, but not so as to impede the brooms in cleansing the flues from soot. In the back of the flue there must be one brick laid neatly to the back of the wall, which being of stone, and the thickness two feet, the same thickness may be carried to the top, that it may the better cast the heat forwards. The front of the flue is to be of the thickness of an ordinary brick, or four inches; and the flues are to be well laid over, both within, and without, with a particular cement, as shall be directed.

The second flue should be two feet deep; the third, one foot and a half; and the fourth, one foot; whereby these flues with their covers will rise altogether to near ten feet high, and one or two feet of topping, whereon the timber should be laid for the frames, with a projection six inches over, under which the top-glasses are to run, that the rain may fairly glide on their outside. These flues should rise one above another, with an inclination of three inches at the contrary ends where the smoke enters, for their better drawing and venting; and to be well coated with strong plaister on the outside, of the most durable kind, which is of stucco; as they must be much exposed to the weather, when the stoves are not lighted. Great care is to be taken in the executing of these flues, both as to strength and neatness, to confine the heat, for on the care of this execution, depends the whole process. I

would also advise some small arches to be erected in the back-wall, with holes in them to admit brooms to free the flues of soot, and at convenient distances, which will be better than attempting it in front, lest the trees might be thereby damaged.

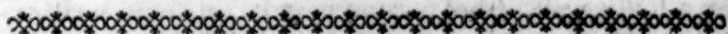
Another method of erecting trelaces, is by a large one of iron, in which there are hooks fixed for the support of the wooden trelace, the upright bars are to be placed at ten feet distance from one another, and the cross bars to run parallel with the tops of every flue; these uprights are to be secured at the top and bottom of the wall; and the cross bars, which contain the hooks for support of the wooden trelace, must be secured to the uprights at each end of the wall, at proper distances. If you chuse to make use of an iron trelace to support that of wood, then you need have but one brick to cover the flues. I would not recommend the wooden trelace to be sooner erected than the third year after planting of the vines, so that they may be fastened to it about a year before they are forced. Nor would I erect the glass frames sooner; but the flues, hooks, or the iron trelace and its hooks, must be executed at the time of building the walls; as also the ovens for the flues and their shades, of which I shall now treat.

One large oven will warm forty feet of walling, and no more; and as there are 150 feet upon each side of the gate, four ovens on each side will be necessary, which are to be twenty-eight inches deep, and twenty inches square at bottom, but may be sloped off on all sides to two feet, so as to be twenty-six inches square at the top, and equal in height to the entrance into the first flue, for the better draught of the smoke into the flues, to be executed of entire brick, and covered with large round ones at top, closely joined and cemented with hot cow's dung, yellow loam, strong lime, and sand, well mixed together. The furnace and flues must be very smoothly plaistered with this composition, for the better confinement of the smoke. The place to receive the ashes must be one foot deep, and as wide as the bottom of the oven, to have an iron door, in a frame of the same, to shut as close as possible; and over it, and just above the bars which support the fuel, there must be a square hole,

hole, about four inches wide, to let in air for the better burning of the fewel, which must also have an iron door in an iron frame, to shut close when the fire is well lighted, which will make it last the longer, and the heat more moderate; and near the top of the oven must be the large iron door, also in a frame of iron, for admitting the fewel into the furnace, and this to be a foot or more square, taking the same care in closing it well, as has been directed in the others.

These furnaces are to be enclosed in shades built of stone and lime, covered with tyles or slates; their breadth eight feet, and their length to take in one or more ovens. These shades are to be descended into by three steps, as they are not to rise so high as the first flue by six inches, that descent therefore is necessary, to give sufficient room to serve the fires; and observe that the entrance into them be at their ends.

Having finished your wall, flues, &c. lay out a border of five feet wide, on the outside of which build a wall three feet below the surface, and to rise four inches above it, leaving vacancies at every eight feet, to let off water, which, if once stagnated, would corrupt, and be hurtful to the plants in the border. Upon this wall the case of timber is to be laid, whereon the sloping glasses are to rest. After these walls are thoroughly dry and seasoned, the trench should be filled (if for Vines) with strong lime rubbish, and a sandy chalkish or lime rubbish soil, a foot and a half high, to be levelled and beaten down pretty hard; and over this one foot and a half of fresh virgin soil, which will be a sufficient depth for Vines; but if for Peaches, Nectarines, Apricocks, Plumbs, or Cherries, then there must be laid in this trench three feet of virgin earth.



Directions for planting and raising Vines.

I Shall now proceed to the planting and cultivating Vines until they are fit for forcing, which cannot be successfully executed until they have been four years planted, when, they will have acquired strength to endure the artificial heat. It is now you are to prepare your frames, glasses, and high wooden trelaces, which must be executed of Fir well painted.

The borders must be prepared six weeks before the Vines are planted, the following sorts of which will best answer the purpose.

1. The white Chasselas, or Royal Muscadine. } early.
2. The black Chasselas, or black Muscadine. }
3. Red Muscadine.
4. The White Frontiniac.
5. The Red Frontiniac.
6. The Damask Grape.
7. The Raisin Grape.
8. The Malmsey Grape.
9. The Red *Hamburg* Grape.
10. The White Muscat, or Frontiniac of *Alexandria*.
11. The Red Muscat, or Frontiniac of *Alexandria*.
12. The Alicant red Grape.

These are the best grapes, either for hot-walls, or in the field; but as few of our grapes arrive at any perfection without artificial heat, I would advise hot-walls for their perfection. Vines are propagated from layers or cuttings: the first method is most generally followed, tho' the least to be approved of, except where they are planted in pots, for the better preservation of their roots; yet I would prefer good cuttings to layers, as vine-roots do not grow so strong and woody as other fruit-trees, but are soft and spongy, and are very apt to be injured; therefore I would give the preference to cuttings, and more so, if they are to come any distance, as they will keep good for four months.

The best season to take off the cuttings is from the beginning of *November* to the end of *January*. When they arrive, let them be laid in a dry sandy or rubbishy border, by a south wall, (tho' not too near it) in some well exposed place, covering them with earth half way up the cuttings, laying mulch or straw upon them for a defence from frost and too much wet; but in mild weather it is to be removed to give them air. It must be observed, that such shoots only as are strong and well ripened, of the last year's growth, ought to be taken; and these should be cut from the old vines just below the place where they were produced, taking off, with the cutting,

cutting, a good knot of the two years old wood, which, if to be immediately planted, should be pruned smooth; but if to be sent to any distance, the pruning is not to be done until planting, or ten days before it; when you are to cut off the upper part of the shoot, so as to leave the cutting fourteen inches long. In making the cuttings in this manner, there can be but one taken from each shoot; but then this under part of the shoot is far better ripened, and will make a much stronger plant, and is far preferable to the practice of cutting the shoot into lengths of one foot, and planting the whole. When the cuttings are thus prepared, they may be packed with dry moss in a box, observing not to shorten them; on their arrival, they must be laid in the bed as before directed, until the season of planting, which is in the first or second week of *April*.

Every thing being now in readiness, and the time for planting come, eight or ten days previous to which, take the cuttings, smooth the knot of two years old wood, which is left at the lower end of the shoot, wash them from any filth they may have contracted, and if they are dry, lay their lower parts in water for ten or twelve hours, which will distend their vessels, and prepare them for striking root; let holes be now opened, about six feet distance, and fourteen inches deep; setting in two cuttings a little sloping, and in such a manner as not to touch or cross each other; then the earth is to be filled in, and gently pressed down with your foot; when more earth is to be laid on, forming a hillock so high as to cover the cutting to the uppermost eye; for were more eyes to appear, they would also prepare to shoot, which would hinder the cutting from rooting; nor will more than one be of any service: then lay some mulch or straw on the surface of the ground, to prevent the sun and air from drying the earth too much; and should the spring prove very dry, they must have water once a week; but be careful to keep the border clear from weeds, until the cuttings begin to shoot, at which time they should be carefully looked over, to rub off all dangles, and to lay the main shoot to any part which is most contiguous to the great iron trellace; or if that is not yet erected, to any small trellace, supported by the hooks in the wall;
this

this main shoot is to be constantly fastened as it extends in length, that it may not break or hang down. If the summer is very hot, cover your plants from eleven in the forenoon until two.

If your cuttings have produced strong shoots at *Michaelmas*, prune them down in dry weather to two eyes, but by no means delay this work until the spring, for by such delay, the young shoots, if permitted to grow, will be apt to decay at their extremities during the winter, which is often of bad consequence to the whole plant. Should the winter prove severe, lay a little mulch or haulm over their roots, to be removed in mild weather. In *April*, dig up the borders gently, so as not to hurt the roots of the Vines, raising the earth so high as to cover the old wood, but yet observe not to cover either of the eyes of the last year's wood; and at this time be careful to take off all suckers. They will now require no further care until they begin to shoot, when they should be carefully looked over, and all shoots rubbed off, except the two from the two eyes of the last year's wood, which are to be fastened to the wall; and so from this time, until the Vines have done shooting, they are to be attended to every three weeks, to rub off all the side shoots, and to train up the two main shoots to the trellace, or some small rods fixed in iron hooks; by the end of *July*, pinch off their tops, which will strengthen all the eyes and wood, observing to keep them clear of weeds. At *Michaelmas*, if the shoots of this year's growth are too strong, shorten them to three eyes, laying the two outmost branches horizontally from the main stem, if they can bear such a position without breaking them; and in *April* dig the borders as in the former year.

The third season you must go over the Vines again, as soon as they begin to shoot, rubbing off the dangling branches and buds, which are produced at the sides, but not at the eyes of the old wood, training the leading shoots, which this season may be supposed to be two, from each shoot of the last year's wood; but if they attempt to produce two shoots from one eye, rub off the weakest; such shoots as produce fruit this year, are not to be checked in their growth, until the beginning of *July*, when you may pinch off their tops; by which means
the

the shoots and their buds will be fully ripened, to send out good wood for the subsequent year, which must be carefully preserved in young Vines, as there are not any shoots laid in on purpose for wood, as practised in the management of old vines; and again attend to the caution of weeding. As the fruit of this year (being the first) is of very little consequence, I would recommend the taking it off, in order to encourage the wood, from the goodness and maturity of which, we are to expect a good crop, when the vines are to be forced.

The fourth year's management of vines, if not forced until the fifth, is much the same as the preceding. I shall therefore proceed to give directions for the autumnal pruning, previous to their forcing in the spring.

I would recommend the setting up the trellace in the beginning of the fourth year, that they may be trained to them one year before forcing, and by that means all the branches may be laid in proper order, for their well fruiting. These trellaces may be erected so as to be held by hooks, which project two, or at most three inches from the wall, as I have already mentioned, or by the great iron trellace, which may be so interlaced, as to make one whole trellace. These which are designed for Vines, should have their rails eight inches one from the other, crossing one another. The wood-work should be of fir, well painted, and the whole well nailed together, to sustain the frame of the whole trellace. To these bars of the trellace, the shoots are to be fastened as they grow, with rope-yarn, or other soft binding, so that every shoot may have its due and regular position, not suffering any to cross or interlace each other. When we come to force the vines, every shoot should be pruned for fruit, and not for wood. This pruning should be early in the preceding autumn, that the buds which are left on the shoots may receive all possible nourishment from the Vine, and be secured in the order they are to lye.

The glasses and frame should not be placed before the Vines until the middle of *February*, of which I shall now give a description. The frame should be made fifty feet long, as there will be annually fifty feet of walling, upon each side of the gate, to be forced; but if you think fifty feet too great a length to force with one fire, confine yourself

yourself to forty, which one fire, without doubt, will sufficiently warm, and which, for the first experiment, I think best, until you are acquainted with the flues, and their force of working. These frames should be so contrived as to be moved, which they must be every two years, as after that time, the Vines are to have one year given them to recover, before they can be forced again. Upon the low wall, in front of the border, a stout plate of timber should be laid, to receive the sloping glasses. These glasses must be divided into two ranges, one above another, as they are to reach from the timber-plate fixed on the low wall in the front of the border, to almost the top of the high wall, they will be too heavy to move if they are longer than six feet, especially as they are to be made of solid work, the better to sustain the glass, and they should be so contrived as to slide one over the other for the advantage of admitting air, which is best done by their having different grooves to move in; and in order the better to command them, let there be stops to raise or let them down to different distances, which may be contrived by having holes made in the frame that supports the glasses, to receive stout iron pins, by way of stops.

The sloping timbers which support the glass-frames should be secured at bottom in the timber on the low wall, and also in that on the high one, by strong iron cramps. These timbers must be of fir, and very stout, having a good depth, that their breadth may be the narrower, in order to take up as little of the sun as possible: from the top should project a strong board, six inches deep, and continued along the frames, under which the upper glasses are to run, to receive the rain; and care must be taken to have it so secured, as not to admit any air on the Vines.

The breadth of the frames for the glasses should be three feet three inches, and to be divided into as many single frames as the fifty or forty feet wall will require; the upper glass frames, as well as the lower, must be of the same dimensions of breadth, and the bars which support the glass must be placed length-ways; but by no means should any cross bars be used, as they would cause the moisture on the insides of the glasses to fall in drops upon

upon the borders, which is to be carefully avoided; and as at each extremity of this framing, there will be an angular space from the glasses to the wall, these will admit of glazed doors, which are to be well fitted, so as to exclude all air, but may be opened occasionally to admit air, particularly when the wind beats too violently on the front of the frame—And here I cannot omit to mention one particular with respect to Vines upon hot-walls, that they should always be planted by themselves.

You are to observe, that if the fires for the Vines are lighted in the second week in *February*, the Vines will begin to shoot the latter end of *March*. The degree of heat must be regulated by one of Mr. *Fowler's* or Mr. *Cole's* botanical thermometers, wherein the spirit should never be raised higher than five degrees above the point Temperate, and if it is kept to Temperate, or five degrees below it, there will be a sufficiency of heat; for should you warm the air more, it will draw the shoots too much, and disappoint you of a good crop: the fires should not be continued when the sun shines, but only in cold cloudy days: a moderate fire made every evening, and continued till ten or eleven o'clock at night, will heat the wall and warm the air sufficiently.

When the Vines begin to shoot, they must be often looked over, to rub off all danglers, and to fasten the new shoots to the trellace. When the Vines are in blossom, watch all opportunities to give them air, for upon the good management at this season entirely depends your crop of grapes, and particularly observe to give water to the border of the hot-walls, in the afternoons, after the sun is off the frames, with water that has stood within the frames 24 hours before you use it. It is then proper, gently to water the ground in the borders where the Vines grow, which will, especially at this time, be of great service to them. These shoots should be carefully handled, and laid, as near as possible, at equal distances, that they may enjoy all the benefits of sun and air, without which they will not thrive. When the grapes are fully formed, the shoots should be stopped at the second or third joint above the fruit, that they may be nourished, and no useless shoots be encouraged; which, in forced Vines, (as I said before) are useless, until those years wherein the Vines rest to recover

cover themselves; for at that time, if your Vines shall show fruit, take it all off, for in resting seasons you are to regard the wood only.

As the weather becomes warm, there must be a good quantity of free air admitted to the Vines every day, which is most necessary for the swelling of the fruit; but at the same time, the glasses should be close shut every night, otherwise the cold dews will retard the growth of the fruit; but in some hot sultry nights they may be quite exposed to the weather.

Some of the bunches of those grapes, after they are quite formed, will appear very thick and close on the stalks, which, when they come to their proper size, would entirely prevent their ripening. It will therefore be very proper, when the fruit is young, to cut off some of the smallest with narrow pointed scissars; by which means, what you leave will ripen equally, and appear sightly. By the second week in *July*, the Grapes will be full grown, at which time the glasses may be kept quite off, as the fine flavour of the fruit is owing to the portion of free air that is given them; but should the season prove cold and wet, the glasses must be laid on every night: but observe, that in *August* you preserve the fruit from the night dews and morning colds, otherwise their ripening will be retarded. The Grapes, when ripe, will be preyed upon by the birds and wasps; the remedies for the first are nets and birdlime, put upon twigs fastened to the rail; and when these thieves are caught by the nets or the birdlime, let the bodies of the malefactors remain hanging there, to terrify their comrades by their fate; to destroy the wasps, hang glass-vials upon the trelace, half full of honey-water, into which they will go, by the attracting smell of the honey, and meet their fate.

Early in *September* you may expect to have ripe fruit, especially the Frontiniacs; but they should not be gathered before they are quite ripe, as the design of forcing is to have the Grapes in perfection, rather than early.

At the time of the ripening, neglect no favourable opportunity to admit free air, for at this season, nightly damps arise, which might mould the fruit; and for such Grapes as do not ripen until late in *October* and *November*, it will be proper to light some gentle fires in the evenings,

evenings, to hasten their fruit, and prevent damps.

The year before you are to force your Vines a second time, prepare a good quantity of light virgin earth, add to this a fifth part of very well rotted hot-bed dung, and some good lime; mix these well together for the space of a twelve-month, for their better incorporating, to be used in autumn; observing to remove five or six inches of the old mould, if you suspect the addition should raise the bed too high. This is not by any means to be neglected.



Directions for the Management of Peaches and Nectarines on Hot-Walls.

THE rails of the trellace for these fruits are not to be above five inches distant from each other.

The border is to have some good middling soil, mixed with some yellow marle, laid in to the depth of three feet, which compost must have been prepared ten months before, and often turned and exposed to the atmosphere. If there be any danger of under-water or damps, let the depth of one foot of lime-rubbish be first laid down.

The kinds for this process are,

1. The Violet Peach.
2. Portugal Peach.
3. The Nivette.
4. Pavie Royale.
5. L'Admirable.
6. Pavie rouge de Pompone, or Monstrous Peach.
7. Catherine Peach.
8. Malacotton Peach.
9. Bloody Peach, or Sanguinole.
10. The Bellgarde.
11. The Bourdine.

And the sorts of Nectarines are:

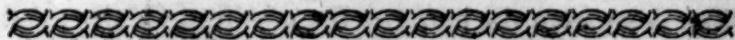
1. Red Roman.
2. Temple's.
3. Golden.
4. Peterborough.

In

In order to manage these trees properly by a thermometer, it should be removed from the influence of the sun, otherwise the spirit will be too much rarified. The heat for these fruits must be kept five degrees under the point Temperate in Mr. *Fowler's* botanical Thermometer. These trees should be pruned very early in autumn, of all small wood, and the large branches cut short; nor should any fire be applied until the end of *February*; and when the fruit is set and visibly swelling, which may be about the 20th of *May*, the glasses, or canvas (if you use that on the frames instead of glass) should be removed, in order to expose them to the open air, for these fruits and shoots to ripen, and the succeeding year's buds to form. By this care your trees may be forced annually, without any injury, provided you observe every year previous to your forcing these fruits, that you lay into their borders some fresh virgin earth, of a good strong kitchen-garden mould, which if you should not have, make use of a little well-rotted dung, the spring preceding, to be dug into the borders in *June*; where the soil is sandy, use well-rotted cows-dung; but if of a stiff clay, use well-rotted horse-dung. This preparation may be made in *November*, by gently spading it in, that its salts may be thereby well washed down. For this purpose, frames of oiled paper, or painted canvas, will answer in the place of glass, and to this I would give the preference. About the middle or latter end of *June*, the fruit will have arrived to the largeness of those on the common walls in *July*, when all kind of covering may be removed; in *August* or *September* you may expect fruit in great perfection.

However I may be considered in these directions, in no wise to have profit in view, give me leave to say I had it not in contemplation for myself; but a desire, perhaps, of saving great expence to some, and of giving advantages to others, especially such as would qualify themselves to conduct such undertakings, at the expence of their betters, from whom they may have both honourable and profitable stations; for the labourer is worthy of his hire, and according to his skill he will expect to be paid: my views are for the public, and such of my countrymen as have a spirit of advancing themselves. And if, by some, my design may be considered as too extensive,

extensive, it must be remembered I command none; every one may suit themselves, especially when the field is extensive.



Directions for the well-growing and fruiting of Peaches, Plums, Cherries, Nectarines, &c. on the common Wall.

AS I have finished the process to be pursued in order to have early Peaches, Plums, Cherries, and Nectarines, I shall proceed to lay down some rules for their management on the common wall; and this direction I would have always observed, viz. to plant each species separate, at least not different sorts one above another; as no tree will thrive well under the droppings of another, except its own species, particularly those of the Cherry-tribe: remember therefore in laying the standard of this tree to the wall, that no other than the Dwarf-Cherry be planted under it.

Let the upper parts of the walls be filled with standard Plums, Peaches, or Almonds, which will fruit very well in most soils, and especially in a south or a south-east aspect; or standard Apricocks, which last will do extremely well in a south-east, as well as south-west aspect. Of Cherries I would plant the May-duke, Holman's-duke, and two or three Morellos, and *Hertfordshire* Cherries, to improve the taste and size of their fruit, which, in this good aspect, they will do in an extraordinary manner.



The Culture and Management of Cherries.

CHerries are a sort of *noli me tangere* with a knife. No fruit-trees so ill agree with pruning as they do; therefore when it is absolutely necessary, it must be performed carefully and sparingly. The soil these trees delight and thrive best in, is a fresh free loam; they will not do upon a dry gravelly soil; there they will blight, blast, gum, and at last die. These trees, if on walls, should

C

be

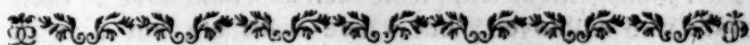
be planted eighteen or twenty-four feet asunder, and a standard between each dwarf; this distance is sufficient. When the dwarfs have grown up so as to fill the wall, the standards must be taken away. I would choose to have them from the nurseries the middle of *October*; and having cut off all their bruised roots and fibres, and made the trees handsome and slightly, turning the place where they are budded to the wall; plant the standards with their stems one foot from the wall, and their heads inclining to it, securing them with lifts of cloth: The dwarfs may be planted at the same time, but they must not lie at such a distance from the wall, five inches being fully sufficient. During the winter, lay some mulch, turf, or straw, about the roots of the new planted trees, to protect them from frost. In the spring, if it is dry, lay turf, with the grassy side downwards, on their roots; but when rain falls, uncover the roots, to receive the vernal showers. They will require no other care, except keeping the borders quite clear of weeds, which borders should be ten feet broad from the wall. In summer, all fore-right shoots which are produced from the beginning of *May*, to the sixth of *June*, must be pinched off with your finger and thumb only, and not by any instrument, either to cherries, or any other sort of wall-fruit; for should it be done with the knife, the branch or bud would soon canker down to the main shoot; and such shoots as are so injured, will not attempt to spring again that year, at least not so soon as if they had been performed with the finger, from the ready healing of such wounds. Should the fore-right shoots be suffered to stand at this season, or until the autumnal, the winter, or vernal dressing, they would deprive the fruit-bearing branches of their proper nourishment, to support good succeeding crops. But with respect to Cherry-trees, such autumnal amputation makes them gum, and become good for nothing in a few years, especially the Morello Cherries, which, the more they are cut, the sooner they die; for, in order to have their fruit well tasted and large, it is necessary to allow them to grow unseemly and quite rude upon a south wall, without ever allowing a knife to be applied to them; and from those trees thus indulged, I have had better, larger, and more

more plentiful crops, than from the nicest drest trees of the same kind I ever saw. I do not, however, mean to exclude dressing entirely in the Morello; they too may be so managed, as to appear handsome, and at the same time to bear good crops.



Manner of planting and laying Cherry-Trees to the Wall.

THE best and surest management, with regard to Cherries, is to lay their branches at full length horizontally to the wall, and never to pinch the extremities of their shoots, unless it be to make them send out some lateral branches to supply a vacancy in the wall. This work should be performed only about the middle of May, (when the wound will soon heal) that the lateral branches which are produced by it, may be fully ripened and strong before the winter approaches: but in doing this, I would not allow any sort of freedom, as they produce abundance of their fruit at the extremities of their branches, and also upon their spurs, which are produced upon two or three years old wood, which you should ever preserve, if you would have a good crop; and on healthy trees they will continue fruitful for many years; but as soon as they begin to knot and gum, turn thick, and of a black colour, cut off the knots and spurs close to the branch in October, with a well sharpened chissel, leaving it very smooth; the succeeding spring, the old tree, if in health, will send out new branches.



Planting Peaches and Nectarines, and the Sorts which are to be preferred.

NEXT to Cherries, I would recommend the planting of Peaches and Nectarines, observing that such trees as are planted on one side of the gate in the hot-wall, the same sort should be planted on the other, in order to be regular.

The Peaches I would recommend are the following :

1. The Red Nutmeg.
2. The Great French Mignon.
3. The Nobles.
4. The Montauban.
5. Old Newington.
6. Early Newington.
7. Double Flowered for its beautiful blossoms.
8. The Chancellor.
9. The Early Purple.
10. The Red Magdalene.

The Sorts of Nectarines are,

1. Elrouge.
2. Newington.
3. Fearchilds early.
4. Red Roman.

Between these dwarfs may be planted some standards of Almonds and Apricots ; but it will be necessary that the dwarfs between the Apricot standards should be at greater distances than those between the Almond standards, as the Apricots spread further ; and these should all be of the *Brussels* kind, they agreeing best with this management. The distance between the dwarf Peaches with the Apricot-standard, (in a good holding soil) should never be less than twenty-eight or thirty feet, that they may have full scope to spread, without injuring each other. This management will please such as would have all their walls well employed ; but where walls are but nine or ten feet high, standard-trees are not to be used ; but against these walls you may plant dwarf Peaches and Nectarines.

Management

Management of the Borders.

IF the borders, upon which those trees are to be planted, should prove a wet soil, let gravel or lime-rubbish be laid one foot and a half thick at bottom, to be beat down; and over it three feet of good loamy fresh pasture-ground, with its turf, which has been taken only ten inches deep below the surface, and which has lain twelve months, or more, to sweeten and rot before it is used. The border is to be raised one foot and a half above the surface of the ground. Should your soil be rocky or of a gravelly nature, lay this compost over it, but be careful not any way to loosen the gravel. Such a soil is favourable to plant Figs or Vines. But for our present plantation, I would prefer a good loamy bottom to any soil, for most sorts of fruits, over which I would lay the composts I have just prescribed. The breadth of these borders should be eight or ten feet, the broader the better, but should never be deeper than three feet, that being sufficient for the roots of most trees, to receive the benefit of the sun's rays and of rain: for when they are deeper, they draw from the earth many undigested juices, which prevent their fruit from ripening.

*Directions for Planting, and Heading the Trees.*

THE best planting season in middling dry ground is *October*, and then you have the choice of the nurseries, before they are drawn and picked; but if your soil is wet, *February* or the beginning of *March* must be chosen; for at that time of the spring, the ground is beginning to dry by the influence of the sun, and the young fibres of the trees will not be so liable to be injured, as if they had been planted in *October* or *November*, when the sun's influence on the earth is declining, and winter fast approaching.

If your plantation is to be made in *October*, lay in the compost, and make up the border in *August*; but if

not until *February*, lay the compost in ridges on the borders in *October*, which will be much benefitted by the winter frosts and snows; but observe always to make up the borders twenty days before planting. When you plant, trim the roots, and head the plants to four or five eyes above the bud, choosing a dry day for that purpose; then with your spade make the holes at the designed distances, wide enough to receive their roots, (but not deeper than eight inches) observing to turn the bud outwards, whereby the wounded part of the tree, which was cut in the nursery when the bud was perceived to take, will be hid, as well as the cutting made in heading. Let the stem be planted six inches from the wall, with the head inclining to it; then fill in the earth with your hands, observing to break the clods, and to take out the large stones and grass, shaking the tree, the better to admit the earth, between its fibres; then gently press it with your foot, but not too much, lest the young fibres should be cramped in their growth, which would be attended with bad consequences; then lay some sods with the grass downwards upon their roots, to prevent their drying; when you water them in summer, remove the turf, and pour it gently about the roots, and over the branches, with a watering pot, having its rose on; laying the turf again on the roots, until the middle of *August*, when it may be removed. If you plant in *October*, the directions just given for *February* will answer, except that the heads of the trees are not to be taken off until *March*, when they must be fastened to the wall, to prevent their being shook out of the ground by the winds. You must remember, when planting at this season, to protect the roots of your young trees from the winter frosts, by laying mulch or straw upon them. In *March* head your trees, but be careful when you perform this work, not to pull them out of the ground, or to disturb their roots; to prevent which, place your foot close to the stem of the tree, and take fast hold of the stock below the bud with one hand to hold it steady, and with the other top the head of the tree to four eyes above the bud with a sharp knife, inclining the slope towards the wall. This work ought to be performed in dry, mild weather,

weather, for if wet or frost gets upon the wound, it will greatly injure the tree. After cutting, put some clay or grafting-wax upon the wounds, to prevent their bleeding. By neglecting this operation, many fine trees have been lost. This ought regularly to be done to all your young wall-trees, immediately after you cut off their heads, and let the clay or wax continue upon the wounded parts as long as it will stick.

Having proceeded thus far, you must next take the mulch, if it is rotten, dig it into the borders, and stir the ground about the roots, but be careful not to injure them; afterwards turf them up, observing once every week to remove the sward, and water them as has been directed. By the end of *May* or beginning of *June*, the Peach and Nectarine trees will have produced shoots of six or eight inches in length, which should be laid horizontally to the wall; but if there are but two long shoots produced, they may be pinched at this season, to produce lateral branches before the winter, whereby the vacancies may be filled up. Observe to remove all fore-right useless buds and branches with your fingers, this being the most proper season for that operation. Be careful not to suffer any of the young branches to run up perpendicularly, which will not only render the trees unfruitful, but unseemly. Let the branches be laid horizontally, altho' the middle part of the tree may be naked for some time, which, by this management, will be soon filled with fruit-bearing branches. This must be your first and principal care: For if this is in the least neglected, it will not be an easy matter to form your tree.

In *October*, when you observe the young trees have done growing, if their shoots are strong, prune them down to eight, but if they are weak shoots shorten them to five inches; and neglect not at this time in particular to train them horizontally; for Peach and Nectarine-trees will not bear to be so often cut as others, their wood being soft and pithy, which will make them gum and go off entirely in a few years. In the winter frosts and severe weather, the roots of these plantations are to be protected as formerly, especially those of the preceding *February* or *March* planting.

When the trees are shooting, the *May* following, neglect not to rub off all such fore-right shoots as are ill-placed, and which will not come easily to the wall; and attempt not to force any, as a little time will produce a sufficiency of those that will answer.

At this season, and no later, is the true structure of the tree to be formed; it is now you can regulate its growth, both for appearance, and bearing. Where vacancies are likely to be in the wall, pinch off a joint or two at the top of the strong branches, that lie most convenient, which will soon send out good lateral branches, for the purpose of filling them; these will be well formed and ripened before *October*, which is the last season of pruning. By this attention, every part of the tree will be furnished with good fruit and bearing-wood; but observe never to stop a shoot, but where it is necessary to fill a vacancy; as frequent stopping the shoots would fill the wall with so much wood, that the tree would be incapable to support it.



Directions for pruning Peaches and Nectarines, &c.

IT must be remarked that Peach and Nectarine-trees are pruned in a manner quite different from other fruit-trees, as they only bear upon one and two years old shoots; wherefore it is necessary to attend to the following particulars; *first*, Let every part of the tree be equally furnished with bearing-wood; *secondly*, That the branches are not laid one too close to another; and *thirdly*, When wood is wanting, that the branches are not pinched later than *May*. And when performing, observe to leave a wood-bud immediately before the blossom-bud, as no fruit can be ripened without having a wood-bud at the extremity to draw the sap, which the fruit-bud cannot; otherwise the fruit will fall off, as soon as arrived to a degree of largeness; the wood-bud differs from the blossom-bud, by being shorter, rounder, and more swollen. The length of these branches, upon strong trees, should be ten inches, and upon weak, six: but in this you must be directed by the leading wood-bud.

In

In nailing the shoots to the wall, they ought to be placed as equally distant as possible. Large Peaches and Nectarines ought to be six inches asunder; for the smaller sorts, four inches will do; and be sure to lay them horizontally, and never in an upright position. The shoots being thus regularly trained to the wall, the fruit will be equally exposed to the sun and air; and will be kept in an uniform state of growing. The consequence of deferring this until *July* or *August*, is, that the fruit (at that time considerably advanced) must be much shaded; and afterwards not too hastily exposed, lest it become tough skinned, ill tasted, and late in ripening.

You must not, upon any account, shorten the shoots after *May*, or at furthest the 25th of *June*, as those produced after that time are weakly and good for nothing. All such weak branches should be cut out at *Michaelmas*, which is the best time for winter-pruning. By strictly observing these rules, I have had better crops of Peaches and Nectarines, than my neighbours, who have had warmer and more favourable situations. I shall here remind you of my former directions, to give dung to your borders in *November* once in two years, and spade it one foot into the earth.—I planted the double-flowering Peach upon walls, for the sake of its beautiful blossoms, rather than for its fruit, which is often late and ill-tasted.

I found the same management agreed perfectly well with late Peaches, to which however I applied some artificial heat to bring them to perfection. The only difference was, that these late Peaches, when they came to be in a condition to be forced every year, were obliged to be pruned shorter in their branches than those planted upon the common walls, as the branches of the forced Peaches are more drawn.

In order to perfect this article of pruning trees, so essential to their preservation and fruiting, we shall here introduce what are given as established maxims by *Monf. Le Genre*, parson of *Henville*.—He advises to prune fruit-trees from the end of *February* to the end of *March*.

His method was, to train his tree from the stem placed perpendicular on the wall: this was to be left longer

longer or shorter, according to its own strength and that of the tree. The other branches are to be ranged on each side, beginning to place the first horizontally, so low as within half a foot of the surface of the border. The other branches are to be laid on the wall, ascending gradually without any more inclination than that the point may be placed a little higher than the lower part or but of the branch. No branches are to run across each other, or to be placed too near one another. The distances between the branches are to be determined from their number and the vigour of the tree. In order to keep the tree full, he prunes a branch short between two long ones, in both wall and dwarf-trees. This, according to him, prevents confusion, and keeps the trees from ascending too quickly, and extending too fast on the sides, which they naturally do, when all the branches are pruned of an equal length.

Great judgment is required in pruning, which must be adapted to the nature of each tree, so as to preserve it in a fruitful and vigorous state.

The great variety that is observable in Pear-trees, requires different methods of pruning. In particular trees the branches must be cut short, when they are too vigorous. In some, the young wood must be cut out, to encourage the bearing of the old: in others, the old wood must be pruned short, or cut out, when it is grown barren, and young wood encouraged to succeed it. In some kinds of trees, it is sufficient to destroy such branches as occasion confusion.

Let the gardener be cautious not to hurt the bearing wood in the center and lower parts of his trees; and these are best preserved, by pruning short the upper branches of the tree, which ought particularly to be attended to in Peach-trees; for if they are not properly kept low by pruning and rubbing off the buds, they will be ruined in six or seven years; whereas, if they are properly managed in pruning, they will last twenty years, or more.

Cut off all the branches, unless such as are necessary to the beauty of the tree. Shorten all the luxuriant branches to strengthen the branches that are weak.

Preserve

Preserve carefully the main stem, which grows perpendicular, and shorten it every year, so as still to preserve it the strongest part of the tree, as from it the whole derives its support. Shorten the lateral bearing branches, cutting immediately above a leaf-bud, so as to strengthen their fruit-buds, and fit them for bearing. Encourage not too many bearing branches, as the fruit on such trees does not come to its proper degree of perfection.

Prune Peach-trees last of all, at the time when you can distinguish the flower-buds; for if the tender branches are pruned too early, they are apt to suffer from the frost, which will oblige you to prune them a second time.

In dwarf-trees, shorten vigorous branches, and stop short those that are weak, in order to render them stronger: cut close to the tree all useless branches. If the tree does not grow of the shape you desire, constrain it, by tying it to a model, which may give it the shape required.

Plum and Cherry-trees cannot be kept regular as they do not agree with the knife.

Le Genre understood and practised summer-pruning to good purpose: he also put in practice that of pinching strong shoots, in order to fill up empty spaces on the walls; and to keep the figure of dwarf-trees, by means of some of the good branches that this method produced.

He observes, that in a vigorous tree, restraining the growth too much by rubbing off buds, pinching, or cutting off branches, the flower-buds which should be nourished for producing fruit next year, are by the efforts of the sap forced to blow; by which they are ruined, and the bearing branches much hurt.

A particular attention ought to be paid to the kind of Pear-tree which is pruned, because the branches of some kinds do not produce bearing spurs so readily as others; such are the Rouffelet, Cuisse Madame, and Jargonelle. All the above kinds should be frequently pinched, with a view of making them produce numerous branches to fill up the wall, &c. Peaches and Apricots must have their branches pinched and shortened for the same reasons,

as

as they are apt to leave the lower part and center bare; and when they are permitted to grow with too much vigour, the quantity of wood-branches which they produce, ruins the fruit-branches, and prevents the tree from bearing.

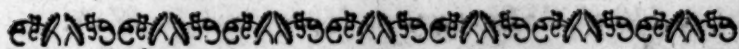
When the trees on the walls get to the head of the wall, or dwarfs grow to too great a height, he advises to cut them down, and train the trees anew.



Form of a Tree well managed for bearing and to look pleasing.

THAT the tree may look well on the wall, and bear plentifully in every part, train your lowest branches, equally on each side, and at eight inches distance from the surface of the border. Let them be placed with a small rise from the horizontal, when the border is level; and the better to keep them in an agreeable form, let the extremity of the lower branch extend a little farther on the wall than the extremity of the branches that are placed immediately above them. The other branches should all of them be parallel to these, and kept gradually a little shorter, as they ascend the wall. Keep the distances between the branches as nearly to an equality as possible. These general directions must be carefully observed while the tree is in a growing state.

I would recommend Peaches budded on Apricot stocks, rather than on Plum stocks, the Apricot's wood being hardy, strong, and compact in texture, whereas the plumb wood, is too soft and pithy.

*Their Management when in Fruit.*

WHEN your fruit is set, and of the bigness of a small nut, thin them to the space of five or six inches, fruit from fruit, which will not only give you what is valuable, but free your trees from being overcharged; which perhaps they would not recover in some time.

If the directions for pruning be duly attended to, there will be very few complaints of bad crops by blights, or branches dying, or blossoms falling off before the fruit forms, or even the fruit falling off the tree before it is ripe, all which is owing to the neglect of looking over the trees at the proper seasons, whereby they are overcharged with ill-ripened branches, or with too much fruit. And here I must inform my readers, that it is as necessary to have the branches of trees well ripened, for bearing good fruit, as it is to have well ripened fruit for the palate. A well ripened branch is one produced in spring, whereby it will have the whole summer and autumn to give it sufficient strength to resist the inclemency of winter, rendering its wood strong, and its pipes for receiving nourishment of a good texture, to supply the young fruit, which can only be produced by pruning at the latest in the month of *May*.

Blights may happen to trees ill-treated, but they never will to trees managed as is here directed. A gravelly soil will blight fruit-trees; but this is to be avoided by making your borders as directed in page 21. They will be blighted also by being too deep planted, but this is to be prevented by raising them; or you may plant new ones in the manner directed in page 21. Unkindly frosty seasons may happen to spoil some trees; but where they are well managed, and become strong, they will very seldom suffer by the inclemency of the weather.

Directions

*Directions for the planting and raising Plum-trees, with
a List of the Sorts most to be preferred for Walls.*

UPON the sides of the wall next the Peaches, I would advise to plant the following Plums: *viz.*

1. White Primordian.
2. Morocco.
3. Little black Damask.
4. Great Violet Damask of Tours.
5. Fotheringhame.
6. Perdrigon white.
7. Violet Perdrigon.
8. Imperial.
9. Red Diaper.
10. Green Gage, largest sort.
11. Mirabelle.
12. St. Catherine.
13. The Empress Plum.
14. Wentworth Plum.
15. Amboyna Plum.

All these will also ripen well upon south-west exposures; and the white Primordian, and the small early black Damask will ripen very well upon espaliers, as will most of the small Plums; but the large Plums I would always chuse to give walls; they ripen better there, and are in less hazard of being shook off by severe blasts of wind: and although they will bear on espaliers, yet in this country they never do so well as when on walls. I cannot omit to mention, that I have always found that those that are budded do better than those that are grafted, and are not so liable to gum as the others do.

After these trees have been one, or at most two years budded, then is the proper time to take them from the nursery, for planting against walls. They delight in the same soil with the Peaches, and as the manner of planting and preparing the ground for them is entirely the same, I shall not here repeat it. The distance between tree and tree upon a ten feet wall, should never be less than eighteen feet, and if you would chuse to plant
standard

standard Plums between the dwarfs, then twenty-four feet dwarf from dwarf will be a good distance, and less will not do. But I would chuse to have dwarfs alone, rather than standards and dwarfs upon one and the same wall.

There are no greater mistakes committed, than in the management and pruning of Plum-trees. Our gardeners in general think they cannot give them too much of the discipline of the knife, their wood being strong and hardy, and the fruit easily obtained. But they are mistaken; few fruit-trees, except Cherries, can endure the knife worse: for by experience I have found, that frequent and unskilful pruning does not only affect their branches, but their fruits also, by gumming of both, which ends in sterility, and at last in certain death.

Plums bear their fruit upon spurs or cufsons, and also upon the last year's wood; whereby there is no necessity of pruning them, as you do Peaches and Nectarines, by shortening their branches annually, to obtain a new stock of bearing wood; for their spurs will, if rightly managed, continue fruitful several years; nor should you shorten their branches, but where there is a necessity to have a vacancy in the walls filled up; and this should be done in the end of *May*, and not later. You must also at that season rub off all fore-right and ill-placed shoots and buds, which, if done carefully, will supercede the necessity of too much winter-pruning, which is prejudicial to most sorts of stone-fruit. This tree always produces a great quantity of blossoms at the extremities of its shoots, which shews the absurdity of taking them off, and the unnecessarily stopping these shoots, gives a multiplicity of branches, which deprives the few fruit that are upon the trees of their proper nourishment. Hence it is, that, in many gardens, I have seen a quantity of strong woody large gummy plum-trees, all made barren by this knife-exercise. I would never therefore advise to pinch the extremity of the shoots later than *May*; and even not then, but when there is a necessity for it, and you want branches to fill up vacancies; and be sure to lay in all the branches horizontally, and not too thick,
the

the largest leaved and fruited Plums thinner than the smaller sorts. Nor should you suffer your trees to be overcharged with fruit, but thin them in *May* with discretion, otherwise they will gum and become ill-tasted, especially the Imperial *bonum magnum*, and the *Wentworth* kinds.

These instructions observed, both with Plums on walls and espaliers, you cannot fail of good crops. I would recommend for espaliers the following Plums.

Plums, best for Espaliers.

1. Orleans.
2. Mirabelle.
3. Brigniole.
4. Haresflaw.
5. St. Catherine.
6. Mirabolan.
7. Queen Claudia.
8. Cheston.
9. Late Horse Plum.
10. Oxheart Plum.

I have already recommended the planting each species by themselves, whether on espaliers or on the walls; on account of the different treatment each sort requires, which if not followed may occasion mistakes.



The Planting and Management of Apricots.

I Come now to treat of Apricots. The kinds which I think should be planted against south-walls in this country, are these:

Upon South-walls.

One or two Masculines, to have them early.
 Transparent.
 Turkey.
 Roman.

Upon

Upon South-west or West-walls.

Masculine.

Algiers.

Breda.

Orange.

Brussels.

The borders upon these walls may be ten feet broad, with three feet of good fresh earth, as directed for Peaches, (see page 21.) which, for all fruits, is depth sufficient, and which should be taken from a hazelly loam-pasture, ten inches deep, with the sward to lie and rot for twelve months at least before it is used. The trees best for planting are those which are only two years old from the time of budding, and on good free-growing Plum-stocks; but the *Brussels* I would chuse to have budded upon the *St. Julian* Plum, as it will not take so well on any other stock, from the compactness of its wood; or they may also be budded upon stocks, obtained by sowing Apricot stones.

The distance of these trees from each other on walls of ten or twelve feet high, should be at least twenty, or twenty-five feet, for reasons I shall shew very fully hereafter. The method of pruning them is very different from that used for Peach-trees. If you plant in *October*, you must cover their roots with rotted dung or mulch in winter, and they must not be headed until *March*, when you must cut them to four or five eyes above the bud, having planted the stems six inches from the wall, with the head inclining to it. Should the spring prove dry, it will be necessary to water them all over with a watering pot with a rose on, which will be of great service, first removing the mulch or dung, which after watering is to be laid on their roots to protect them from the hot sun, or fods with the grass-side down.

As their branches are produced, they should be nailed horizontally to the wall; and all fore-right and ill-placed branches entirely taken away, but do not stop any shoots which are to remain on the tree in the summer;

D

other-

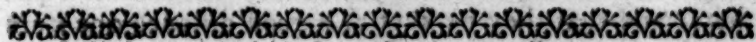
otherwise you will occasion a needless multiplicity of branches, whose shoots cannot be perfected or ripened before winter, so as to withstand its severities, and therefore will never be in a good bearing state.

So soon as you perceive your trees have done growing, un-nail the shoots which you laid on the wall in summer, and, if they are strong, cut them to nine inches length; if weak, to five: whereby the lower part of the wall will be well filled the next or the year following. And I would always choose to have the under parts of the wall well laid in with branches, before I attempted to lay in branches above, at least before I pinched them for making their lateral branches shoot.

The next summer's management will be much the same as the former; but be sure in *May* to rub off all fore-right shoots, and nail the others close to the wall horizontally; at *Michaelmas* shorten these shoots as was directed for the former year, the strong branches to nine, the weak ones to five inches, but do not shorten too many of them, whereby you may over-charge your trees with shoots. Apricots produce their blossom-buds upon cufsons or spurs, as well as upon the last year's shoots: wherefore great care ought to be taken not to injure or rub them off; but, if you want to cut off an useless or luxuriant branch, cut it out entirely, and do not keep it, in expectation that it will put out spurs or snaggs for bearing; for if it should produce any, they will be woody and unfruitful.

After your Apricots are set, and become as big as hazel nuts, thin them with your hands, taking care in pulling them off, not to bruise the spurs or small buds, which are near the fruit. By observing these rules with discretion, and some practice, you will attain to the method of pruning trees well, which is one of the most material qualifications of a good gardener, and is a science which has been by many authors so perplexed and confused, as to render it entirely unintelligible, and so much as not to be practised by any: but by attending to these few general rules, and observing the different growth of fruit-trees, you will become expert: for instance, Vines produce on wood of the same year's growth; Peaches
and

and Nectarines upon the former year, or at most two years wood; and Plums, Pears, Cherries, Apples, and Apricots, on cufsons or spurs, of three, four, or five years growth; and for these I shall lay down some general rules necessary to be attended to.



Some general Rules necessary to be observed and recommended in regard to Pruning Vines, Peaches, Nectarines, Cherries, Pears, Plums, &c.

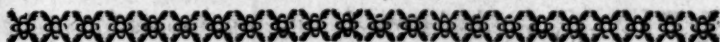
VINES should have all dangling shoots soon taken off, and should never be suffered to have more than one shoot produced from one eye, and their fruit-bearing branches topt in *July*, at the third or fourth branch above the fruit; as should also the long branches which are left on the trees, to make them ripen well for bearing, or for pushing good eyes for succeeding years, in order to obtain strong bearers; and this operation should be performed, whether the Vines have or have not fruit upon them. They should be pruned at *Michaelmas*.

Peaches and Nectarines must annually have a new succession or provision of branches made, as they bear only upon one or two years old wood, and no other. In *May* that provision is to be made, and no later, by pinching their strong branches to produce new ones, and displacing all fore-right and usefess branches or buds at that season, observing to cut immediately before a wood-bud, as directed in page 24; and in *October* all usefess and sterile branches must be cut out.

Cherries are not to have any knife-management, except to furnish the vacancies in walls, at *Michaelmas* or *May*; but the less the better; rub off all fore-right or usefess shoots in *May*, and no later.

Pears do not agree with pruning at the extremities of their branches, which is never done but in case of necessity; they require the displacing of fore-right shoots in *May*; but they, as well as Cherries and Plums, all of which bear on cufsons or spurs, abhor all amputations,

except to supply vacancies in walls, or to cut out luxuriant branches, which you can soon discover, by their being strong and woody, and with very long spaces betwixt the eyes or buds, which last appearance denotes them to be woody, and consequently not fruitful. Lastly, all branches which are to continue on the trees, ought to be laid horizontally, whether on walls or espaliers, and that they be kept at a good distance one from another, according to the size of their leaves and fruit; in such a manner as not to be crowded, but that both the fruit and shoots may have plenty of air and sun to ripen them kindly.



Pears for Espaliers and Walls, with some Particulars relative to their grafting, training, pruning, &c.

AS to Pears, the summer and autumn sorts ripen extremely well upon espaliers; but the winter kinds, either for baking or eating, must have south-east, south, or south-west walls; what are called late autumn Pears in *England*, will not ripen in *Scotland*, except upon walls.

All the buttery, or melting sorts of pears, should be grafted on quince stocks, such as the

Grey and red Butter Pears.

Cuisse Madame.

Crasane Pear.

The good Lewis Pear.

The L'Echasserie.

The Virgoleuse.

The Winter Thorn.

St. Germain.

Cadillac.

Doctor Uvedale's St. Germain.

The German Muscat, and some others.

But this method of grafting upon Quince stocks, is only to be performed where you have a good strong holding soil, otherwise they are better on free stocks. When you prepare the borders for planting, there ought
to

to be three feet depth of good strong clayish soil made for them, and they should not be narrower than ten feet, as has been formerly directed for borders in which other fruits were planted. The manner of preparing them for planting, and of managing them immediately after, being the same as for other fruit-trees, I need not repeat it here. But the distance, especially upon walls, which I would allow to them, tree from tree, should not be less than twenty-five feet, on account of their long extending branches, which if you shorten, except upon great necessity, you will prevent their ever thriving or being fruitful. The first summer after they are planted, their branches must be trained horizontally to the walls. If they are produced too thin, you may shorten them at *Michaelmas*; but I would chuse to be as sparing of this operation as possible, and rather allow them to take their full scope at length; for probably they may (if the trees are healthful) produce lateral branches from these first year's shoots, abundantly to fill up the wall. If they are large fruiters, their branches should never be laid in at less distance than nine inches, branch from branch. The blossom-buds are for the most part produced at the extremities of the shoots, as well as upon the spurs or cufsons of the branches; therefore if you shorten them, you take away these blossom-buds; so that the longer these branches extend horizontally, the more blossomy spurs they will have, from which you are to expect a good crop of fruit. I have often observed the long branches of Pear-trees, for the first three or four years after their beginning to show blossom and fruit, show them at the extremities of their long horizontal branches, when they had no blossoms on any other part of these branches, which makes young gardeners think their trees will never bear good crops; but in this they are greatly mistaken; for where these trees are well managed, and come to be eight or ten years old, the great hurry of the sap, which, when young, and on the approach of the spring, runs to the end of their branches, by age and maturity, comes gradually, and with fertility, to be dispersed through the intermediate spurs, making them all fruitful. The trees should be often looked over in *May* and *June*, that all luxuriant and fore-right shoots may

be displaced as they are produced, which will occasion very little knife-work after their fruits are gathered; and it will be necessary in gathering them to be careful that the buds next to the stalks of the Pears be preserved, and be not rubbed off in gathering the fruit; for from these come the most blossom-buds for the ensuing season. By turning up their foot-stalks, the fruit will easily come off, without harming the spurs, which produce fruit and blossoms for the ensuing year.

The best season for pruning these trees, where there is occasion, is immediately after the fruit are gathered; but as some of them remain late on the trees before they ripen, if frost should appear to be setting in for a continuance, (as happens sometimes) it will be proper to defer pruning them until *February* or *March*.

I would also direct to have some trees of the *Cuisse Madame*, and of the summer *Bon Chretien* planted on walls, which will make them come earlier, and have larger fruit, than they have upon espaliers. This much will suffice for the culture of Pears upon walls, but observe to water them well in dry weather in summer; this will keep their fruit always in a growing state, otherwise they very often drop their fruit in dry summers, or in autumn, before they are ripe.



The Culture and Management of Figs.

ON the wall with which I cross the garden, I would plant Figs; for which purpose it must be twelve feet high, built of stone and lime, and lined with bricks in the best manner, with piers of brick, and iron hooks fixed in them, at every twenty feet distance, jutting out from the wall six or eight inches, some stout double forked hooks, at eight or ten inches distance from the top to within two feet of the bottom of the bricks, which piers and hooks are to receive mats or reed covers, to fix over your Fig-trees in very severe winters, and early in the spring, which you must observe not to move away too suddenly. Between these piers I would have one Fig-tree

tree planted; and as the culture of this excellent fruit is but little understood, I shall be particular, and give my reasons for what I advance, as it is somewhat different from the common and modern practice.

The best sort of Figs for this country, are,

The Large White.

The Large Blue.

The Marseilles.

The Candia.

The Rose Fig.

They are propagated by layers, and by suckers; but the first method is preferable; for plants produced from suckers always produce suckers, and are never so good bearers as the layers, which make good plants in one year's time. Lay the branches in *February*, and they will be well rooted against that time twelve-months, when they should be taken off, and planted where they are to continue for good. Only observe, that after your branches are layed, and begin to take root, you keep that part of them which is pegged down well covered with earth, and well watered in dry weather; and in winter well covered with pease-haulm, to prevent frost from injuring the young fibres of the layers, which are then shooting into the ground.

The soil in which they prosper well, is gravel, or chalk mixed with loam; they will also grow in good kitchen-garden earth: But where you do not prepare a soil suitable to them, you cannot expect any tolerable crops of fruit; wherefore it is proper to make the soil for them in borders on the wall, two or three feet deep, and six or eight in breadth.

I would choose to plant these trees the beginning of *March*, and no sooner. They should be planted in the same position as is directed for most other fruit-trees upon walls; but they should not be headed, for the fewer amputations they undergo, excepting in case of necessity, the better they thrive. The first year they will require some refreshings with water in dry seasons; and by the end of autumn I would advise some mulch to be laid about

their roots, to prevent frosts injuring their tender fibres; and by this time they will have made some side-shoots, which by *October* should be nailed horizontally, and close to the walls. The second year of their management is much the same as the first: but in *April* and *May* I would always observe to rub off all fore right shoots, which will not lie well to the wall, at least those buds which are ill-placed; but such as are well-placed, should be allowed to continue, to fill the tree at the bottom with young wood, as that only produces fruit, and not to lay them in nearer than ten inches; for crowding these trees with bearers is as bad as having too few. At *Michaelmas* there will probably appear some small young fruit on the branches; but these I would choose to take off, for it very seldom happens that they continue, but rot by frost or storms; and if they are allowed to rot on the young branches, they often infect them, which ruins most of the young tender wood.

I own I am of opinion with those, who are not fond of pruning this tree in autumn, as it is of a soft pithy substance, and bleeds so much, that the wounds would not be effectually healed, before the winter frosts set in; and from this I have often found a branch pruned in autumn, rotted entirely by *February*. In autumn the sap is but descending or evaporating, and is not quite gone down: so that an amputation at this time must occasion great effusion of it; upon which account I recommend the end of *February*, when the sap is least in motion. I would perform at that time all my wall-prunings, and also shorten my long branches, the better to obtain new wood; and I would be very sparing of topping branches, unless there is an absolute necessity. Some modern practitioners will object to this pruning in *February*, judging, that, as the spring approaches, the trees will bleed more than at *Michaelmas*, and consequently will suffer more: to which I answer, that from experience I find the sap is in a less degree of motion in *February*; and this I discovered in *February* 1750, upon a young branch of a Fig-tree, entirely divested of its late crop of fruit, and a young branch of the same length and bigness, in *February* 1751. I weighed them both, and found that the fresh branch cut off on the 22d of *February* 1751, O. S. weighed a fourth part less than the branch which I cut off

off the 29th of *September* 1750, O. S. Whence it appears, that there is less sap flowing in these trees in *February*, than in *September*; the consequence of which is plain, that there will be less effusion of sap in *February*, than in autumn; and the former has the advantage of parting with the winter frosts, whereas with the other they are on the approach.

Upon this south aspected wall, as it is built high, you can have Pears and Apricots, but not intermixed with the Figs, which should be always planted by themselves; and here and there, upon the piers amongst them, you may have an early Vine or two, to try if they will ripen, such as the White Sweet-water, and the White Chasselus; or if they do not ripen, there may be verjuice got from them, and Vine-leaves, which are good for several kitchen-uses. Upon the side of this wall, facing the north, you may plant Morello Cherries and Currants, which will grow there very well, and produce good crops. Currant-trees planted in this northern aspect, hold their fruit for a long time after the trees, in a more favourable aspect, have given theirs.

Thus I have laid out the two south aspected walls of this garden, with the culture of the fruit-trees I would direct to have planted thereon.



Plantation of the South-west Wall, with a Collection of the Fruits best suited to the Aspect.

I Proceed now to the south-west aspected wall, upon which may be planted the following fruits:

Of Peaches.

Bourdine.
Double flowered.
Red Nutmeg.
Ann Peach.
White Magdeline.
Great Mignion.
Nobles.
Montauban.
Early Purple.
Red Magdeline.

Cherries.

Cherries.

Morello.

Holman's-duke.

Carnation.

Bleeding-heart, } upon Cornish Cherry-

Amber-heart, } stocks.

Hertfordshire.

Apples.

Golden-pippen.

Nonpareille.

Le Reinette Grise.

Nectarines.

Fairchilds early.

Newington.

Elrouge.

Red Roman.

Tempels.

Plums.

White Primordian.

Early black Damask.

Cheston.

White Perdrigon.

Great Violette of Tours.

Fotheringham.

Perdrigon Violette.

Wentworth.

White *Bonum Magnum*.

Red ditto, or Imperial.

Queen Claudia.

Green Gage.

Drap d'Or.

Pears.

Summer Bon Chretien.

Winter ditto.

Pound Pear.

Black

Black Pear of Worcester.

Cuisse Madame.

Virgoleuse.

St. Germain.

Red and grey Beurris.

Crassane.

Colmar.

La Bessi de Chaumontelle.

La Mansuette.

Holland's Bergamot.

Apricots.

Masculine.

Brussels.

Orange.

Turkey.

Breda.

Algiers.

A white Jessamine or two.

Three or four Mulberries.

Six or ten thin-shelled Almonds.

And some others as you fancy, as the ground and situation will suit.

This wall should be built of stone and lime, and lined with bricks, as is already proposed, ten feet high. The fruit-trees should be planted by themselves, and not intermixed; the borders should be ten feet broad, and two and one half deep, made of new earth, as has already been directed, under the different articles of the several fruits; and it will be very proper at the bottom of this border to lay some clay, and beat it hard, so that the roots of the trees, when they reach to the bottom of the border, may not have liberty to enter into the clay; this beating of it hard, and cutting off from your young trees all carrot or descending roots, and forcing them horizontally, prevents them from going too far below the surface of the earth, so as to be deprived of the influence of the kindly rays of the sun, or of showers. I have heard of some persons who have put flag-stones at the bottom of these borders, for the same purposes; but of

of this I have had no experience. One thing I observed was, that when I got my fruit-trees from a nursery, I examined how deep they had been planted there; and after trimming their roots, I planted them in such a manner, as to be only one inch deeper in the ground than they were planted in the nursery, and no more, unless when they have been too deep planted, in which case I plant them shallower, one foot and half being deep enough for any trees whatever.

Having thus disposed of the south and south-west affected walls in this garden, it will next be proper to lay down some methods for disposing of the other two walls, so as to make this garden pleasant and profitable.



In order to extend this Article of Gardening, we shall give a Collection of the Trees of the most delicious, as well as the most useful Fruits, with the Particulars of their Excellencies, the Aspect most favourable to them, with other Particulars necessary to engage our Choice or Refusal of them.— This Collection is taken from a Piece entitled The Fruit-Gardener, compiled from the Practice of a Gentleman in Scotland, so that a Sameness of Climate is preserved in the Gardener's Director, which is highly essential, from its Affinity and Agreement with Ireland, where the Practice here recommended has been found really valuable.*

P E A C H E S.

No. 1. **T**HE Red Nutmeg: the fruit are melting, juicy, and the taste agreeable. The tree is hardy, and a good bearer, though the wood is weak.

No. 2. *Anne Peach.* The tree is a vigorous grower, and makes a beautiful figure, when properly pruned, and regularly trained to the wall; but, like other vigorous growing trees, is long before it comes to its bearing state, unless aided by judicious pruning: its fruit are beautiful and delicious. No.

* It is to be observed, that when the beginning of a month is mentioned, it includes from the 1st to the 10th day; by the middle, from the 10th to the 20th; and the end takes in what remains from the 20th to the end of the month.

No. 3. *The Minion* is a large red Peach; its skin is like fatten; its flesh is fine and melting, with a brisk sweet juice: the shape is longish, with a furrow in the middle, and generally one side larger than the other; the stone is small. The tree grows with vigour. I have found it subject to be killed by severe frost happening late in spring or in summer.

No. 4. *The Montauban Peach* is very large, red, when exposed to the sun, but pale towards the wall: its pulp is free, and its juice delicious. The tree is hardy, grows regularly, so is easily trained to the wall, on which it looks handsome, and bears plentifully.

No. 5. *The Noblest Peach* exceeds the Montauban Peach in size; the pulp quits the stone, is melting, and the taste excellent. The tree produces its branches in a very regular manner, is hardy and durable, and generally a good bearer.

No. 6. *The old Newington* is a British Peach originally; it is large and beautiful, the pulp is firm, and sticks to the stone; its juice is brisk, and well relished: the tree is hardy, and bears well.

No. 7. *The Admirable* is large and round, of a fine red colour, the pulp firm and melting, its juice brisk and sweet, its stone small, it comes to perfection when happily situated, even in bad seasons. The tree is beautiful and hardy, and bears a great deal of fruit.

NECTARINES.

No. 1. *Elrouge Nectarine* is in shape longish, of a middling size, has a melting pulp, and vinous juice.

No. 2. *Red Roman Nectarine* is a large fruit, of a red colour all round; its substance is firm, of a yellow colour, and the taste very agreeable.

No. 3. *Newington Nectarine* is large, of a red colour, and the pulp good. The tree is hardy, and a good bearer.

APRICOTS.

No. 1. *The Early Apricot* is small, and its juice sweet. This tree is known by the smallness of its wood and leaves.

No. 2. *The Brusselles* is large, its juice brisk and agreeable. The trees are commonly hardy, and for the most part good bearers when old.

Besides

Besides the above described kinds of Apricots, the large *Dutch, Orange, Turkey, and Roman*, may prove acceptable to such as are fond of Apricots, and delight in variety of fruits.

P L U M S.

No. 1. The first ripe Plum is called by some writers the *Jean Hative*; by others, the *White Primordian*: its longish shape resembles some Pears. It is of a yellowish colour, covered with a white powder when ripe: its pulp is tender, and the taste not unpleasant, by a small perfume added to an acid and sweet happily blended together: it quits the stone. The tree is a tolerable good bearer, but is apt to grow too thick of branches, when it is not carefully pruned. This fruit ripened on a south-east aspect about the beginning of *August 1761*, as also *1762*, and in the middle of *August 1764*.

No. 2. *Queen Claude Plum* is small and round, flattened a little at each end; the skin is pearl-coloured, with red spots: its flesh is firm, comes clear from the stone, and the taste of its melting pulp is sweet and delicious. The tree grows regularly, and bears well. The fruit were ripe on a south-west aspect the beginning of *September 1761*.

No. 3. *Mirabel* is a round small beautiful Plum, of a whitish yellow colour; the substance is firm, and quits the stone: the pulp is sweet and delicious. The tree makes a handsome figure on the wall, by its regular and numerous bearing branches. The fruit were ripe on a south-east aspect the beginning of *September 1761*. It is generally a good bearer.

No. 4. *Blue Perdrigon Plum* is large and long, of a blue colour, and finely powdered: its pulp is firm, parts from the stone, and the taste is very delicious. The tree grows regularly, and is very beautiful, but a bad bearer.

No. 5. *Royal Plum* is round, and rather larger than the *Perdrigon*, of a charming red colour, little powdered, and very beautiful: its taste is exquisitely fine. The tree produces its branches thin and irregular, and is a bad bearer.

No. 6. *Maitre Claude* is large, round, and whitish. Its pulp, which is firm, parts from the stone, and its juice
is

is brisk and sweet. The tree grows vigorously, and bears well.

No. 7. *Green-gage Plum*. The name denotes its colour, though it turns a little yellowish when ripe: it is large, round, and somewhat furrowed in the middle. Its pulp is tender and juicy, and its taste so exquisitely sweet and delicious, that nothing can exceed it. The tree grows regularly, is hardy, and bears plentifully. It may be planted in the manner formerly mentioned, and seldom fails to succeed. The fruit were ripe the middle of September 1761, on a south-east aspect.

No. 8. *Reb-Courbon*, or *Red Diaper-plum*, is nearly round, of a beautiful red colour, with a bluish powder over it: the flesh is free, delicate, and sweet. The tree makes long regular shoots, and is a good bearer. Its fruit were ripe, on a south-east wall, the middle of September 1761.

No. 9. *Apricot-Plum* is large, round, and white: its flesh is firm, sweet, and agreeable. The tree grows vigorously, and after it is some years planted on a wall, bears pretty well.

No. 10. *Brugnolle* is a large, longish plum, furrowed in the middle, of a dark violet colour. Its substance is tender, juicy, and sweet, and comes off from the stone. The tree grows vigorously, and, if properly managed, is a good bearer. It ripened on a west by north aspect the beginning of September 1761; the middle of August 1762.

No. 11. *Fotheringham* is a large, long, red, and beautiful plum: its flesh is firm, and the taste delicious. The tree thrives well, and is no bad bearer.

No. 12. *Orleans* is a large, round, green and red Plum: its flesh, which is firm, parts from the stone, and is not unpleasant, though it has a good deal of the acid. The tree is the most vigorous grower of any Plum-tree that I know. It is to be lamented that this tree is not more hardy; for it is the best bearer of any we have, both on a wall and in the open air. A frost in the month of June 1759, killed several trees on the wall, as well as in the open air. Its too great growth seems to dispose it for suffering by cold, for I have known it shoot five or six feet in one year.

No. 13. *Magnum Bonum*, or *White Imperial*, is a very large, beautiful, oblong Plum; yellow when ripe. Its
pulp

pulp is soft, sweetish, and agreeable; it is excellent for preserving. The tree produces only a few vigorous branches, with some small ones, yet it is a constant and great bearer.

No. 14. *Red Magnum Bonum*, or *Imperial-plum*, is very large, of a Pear-shape, and dark red colour when ripe: its pulp is soft, not very juicy, and tolerably good. The tree produces numerous branches, full of spurs, and is a very great bearer.

No. 15. *Saint Catharine* is of a Pear-shape, yellow when ripe; and if permitted to hang on the tree till it becomes wrinkled near the stalk, and soft, its juice is rich and sweet. This plum will keep a few days after it is taken from the tree. The tree grows regularly, is beautiful, and bears well.

No. 16. *Imperatrice* is shaped like the *Violet-Perdri-gon*, of the same colour, but adheres close to the stone. Its flesh is firm, and of an excellent taste. The tree is hardy, and no bad bearer.

Besides these above described, there are many kinds of Plum-trees common in Scotland, which may be obtained by suckers, and thrive and bear well without any trouble, except that of planting. Such are the *White-Corn*, *Summer-Scarlet*, *Damascenes*, *Julians*, *Burnets*, *Horse-Faggs*, *Winter-Scarlet*, &c. and these kinds thrive well in hedge-rows in many places, and bear plentifully; neither are the fruit of many of them to be despised.

C H E R R I E S.

No. 1. *May-Cherry* would not deserve to be named, were it not the first of the season in making its appearance. The wood of the tree is small, and it requires the best soil and warmest situation, as well as a very favourable aspect, to bring it to any perfection.

No. 2. *May-Dukes* are fine large Cherries, nearly of the shape of a Heart-Cherry, of a dark red, or rather black colour when perfectly ripe: they are juicy, sweet, and delicious. The tree has large leaves and strong wood, grows regularly on a wall, and is a constant and great bearer on a south or south-east aspect, or even a worse. Some of the trees should be planted on every aspect, in order to enjoy their fruit as long as possible; though

though those that are the first ripe in the season, are generally the most delicious. This kind neither thrives nor bears well in the open air, unless in warm situations.

No. 3. *Heart-Cherries* are so called from a supposed resemblance to the figure of a heart; they are of different colours, white, red, and black. The fruit are large, and, as it were, squared; their pulp is firm, tho' melting and juicy: the taste is remarkably sweet, and very pleasant. The trees produce large, long, irregular wood-branches, and the leaves are long and narrow. They are almost all of them but indifferent bearers, nor do they constantly bear well even on walls. The *Orleans*, *Lukeward*, and *Gascoigne*, are no other than the above Hearts, under the different names imposed by the *French*.

No. 4. *The Bleeding-heart* is known by a drop, or tear which hangs at its end. The tree grows vigorously on a wall, but is a bad bearer.

No. 5. *Carnation-Cherry* is a delicate and beautiful fruit. The tree grows very vigorously on a wall, but is no extraordinary bearer. It seems to be too tender for the climate of *Scotland*; for though the fruit acquire a considerable size soon after they are formed, yet they seldom come to perfection, or acquire a proper degree of maturity.

No. 6. *Cluster-Cherries*, the fruit which grows in bunches, as the name denotes, are but very indifferent. The tree grows regularly, makes a fine half-standard, but is a bad bearer.

No. 7. *Kentish-Cherries* are large, round, and red, when ripe. They have much juice, which is very agreeable, having a pleasant sweetness joined to a little sourness. The wood of the tree is weak, its branches numerous and regular. It makes a beautiful standard, or half-standard; and as its flowers are late in spring of appearing and opening, the fruit generally holds well. This is probably the reason of its being so generally planted preferable to the other kinds.

No. 8. *Morellos*. The best kinds are very large, of a black colour when ripe: the pulp is sour, and they are agreeable to few persons, unless eaten with sugar, or preserved. The trees grow regularly, are beautiful, and bear great quantities when planted on a north wall, or

any other aspect. When the trees are planted as half-standards, they grow thick of bearing branches, make a good figure, and blossom universally, tho' they bear but indifferently. The fruit produced in the open air are small, and look poorly; but in their taste are far superior in goodness to the fruit that have grown on a wall.

P E A R S FOR SUMMER.

No. 1. *Pear-Crawford*, by some called the *Summer-blanchette*, is of the true Pear-shape, a degree above the Small-pear, of a white colour: its flesh is tender and juicy, and its taste is agreeable. The tree is hardy, grows vigorously, and makes not only a fine appearance in every shape in the open air, but also bears plentifully on a wall.

No. 2. *Ladies-Lemon*: its body is round, flattened towards the eye, and somewhat protruded towards the stalk, which is inserted. The colour of this Pear is red where it is exposed to the sun, and yellow on the opposite side. The flesh is tender, and the juice sweet, with a little perfume: it was ripe the middle of *August* 1762. The tree grows regularly, and is a good bearer.

No. 3. *Green-Pear of Pinkie* is small, nearly round, though flat towards the foot-stalk, which is short and straight: the colour is green, mixed with yellow. The flesh is soft and melting, and its juice has an agreeable sweetness: it is generally ripe the middle or end of *August*. The tree grows tolerably large, and bears well.

No. 4. *Pear-Piper* is small, oblong, though larger at the head, and protruded towards the foot-stalk, which is long and inserted. The colour of this fruit is green yellow; its substance is tender, and its juice a delicious mixture of acid and sweet, that is very pleasant. It ripened the middle of *August* 1762. The tree grows well, and bears plentifully.

No. 5. *Wine-Pear* is short, thick, and headed, flattened towards the eye, which is furrowed. Its colour is red, yellow, and green; its flesh tender, and its juice not unpleasant. It ripened the middle of *August* 1762. The tree produces numerous branches, which are thick placed; it is a great bearer.

No. 6. At the same time that I examined the above described Pears, I received a round, red, and yellow Pear,
of

of a moderate size, with a short foot-stalk : its flesh was tender, acid, and sweet, and its taste not unpleasant. It was ripe the middle of *August*, and seemed to agree with the Prince's pear of Mr. Miller, &c. The tree grows well, and bears copiously.

No 7. *Little Muscat*. *Pyrus sativa, fructu aestivo, parvo flavescente, moscato*, TOURNEF. *Inst. Rei Herb.* *Petite Muscate*, QUINTINYE. This Pear is small, nearly round, of a yellow colour when ripe. Its substance is melting, and of a highly musked flavour. The tree produces little wood, and is only fit for a wall in most places of Scotland ; and if it is properly pruned, it makes a fine appearance on a wall.

I shall now describe a few Pears that are contemporary in their ripening with the above kinds, and of a larger size, and some of them of superior goodness.

No. 8. *Forrow-cow* is a large Pear, headed, and flat towards the eye, with a short foot-stalk. Its colour is red and yellow ; its flesh is tender and musked. The tree thrives well, and is a good bearer as a standard.

No. 9. *Jargonelle* is a French Pear. (*Pyrus fructu aestivo, oblongo, ferrugineo, carne tenera moscata*, TOURNEF. *Cuisse Madame*, QUINTINYE) It is large and long, of an iron colour next the sun, and of a greenish yellow colour on the opposite side. Its flesh is tender, juicy, and peculiarly delicious: it ripened the middle of *August* 1762. The tree produces long large wood-branches, in a very irregular manner, and does not bear well till it be grown old. The Jargonelle never makes a beautiful tree, either as a standard, espalier, or dwarf. It may be trained against a wall, but requires great room.

No. 10. *Ladies-Thigh* is so called from its finely tapered shape, and smooth soft skin. It is large, the pulp is tender and juicy, and of a pleasing taste, being a little musked. The tree produces small regular branches, but it does not bear well till old. When properly trained it makes a fine dwarf.

No. 11. *Large Blanquette* (*pyrus fructu aestivo, albido, majore*, Tourn. *Grosse Blanquette*, QUINTINYE) is oblong, a little coloured where it was exposed to the mid-day sun, but white where it was shaded. Its flesh

is breaking and tender, sometimes a little stony; its juice is sweet and agreeable. The wood of the tree is small and regular, and it makes either a beautiful standard, or dwarf, but is a bad bearer.

No. 12. *Pear Sauch* is a beautiful Pear, of an oblong shape, big-bellied, of a yellow colour: its eye and stalk are protruded, its pedicle is thick, and of a middling length; its substance is viscid, its taste is somewhat sweet and mawked, and yet it is a very indifferent Pear; it was ripe the end of *August* 1762. The tree is hardy, makes a large and beautiful standard, and is a great and constant bearer; so that no other kind of Pear-tree is so profitable in an orchard as this is.

No. 13. *Musk-drone Pear* (*fructu estivo, turbinato moscato*, *TOURN.* *Bourdon*, *QUINT.*) is of a middle size, longish, and well-shaped: its pulp is tender, sugared, and musky. The tree is hardy, and grows regularly, but is generally old before it begins to bear.

No. 14. *Magdalene Pear* (*Magdalene*, *QUINT.*) is a large green Pear, in shape resembling the Bergamot. Its flesh is tender and melting, and its juice sweet. This tree makes a beautiful appearance, whether you plant it as a standard, or train it as a dwarf.

No. 15. *Red Admiral* (*Pyrus fructu estivo, globoso, e viride purpurascente*, *TOURNEF.* *Amere roux*, *QUINT.*) is red coloured, inclining to purple: its figure is round, and the fruit is large: its pulp is tender and sweet. The tree grows regularly, and bears plentifully.

No. 16. *Summer Bergamot* is of a shape nearly round, though rather thick towards the stalk. In size and colour it nearly resembles the Autumn Bergamot. Its pulp is tender, and its juice sweet. The wood of the tree is regular, and the branches gross; but they are delicate and apt to canker. — *Tournefort* has very happily described this Pear, when he calls it *Pyrus fructu sessili faccarato*. In several places of *England*, it is called *Hambden's Bergamot*. In *Scotland* we meet with many Pears of the name of Bergamot, that vary much as to the times of ripening, and have their name from the perfume that is perceptible in the autumnal fruit.

No. 17. *Summer Good-Christlan*. *Pyrus fructu oblongo, magno partim rubro, partim albido odorato*, *TOUR.* *Bon Cretien*

Cbretien de Este, QUINT. It is in shape long and regular; its smooth skin is of a greenish yellow colour where it grew in the shade, but striped with red where it was exposed to the sun. Its pulp is tender and juicy, and is agreeably perfumed. The tree grows regularly, thrives well, and makes a beautiful appearance; but it is a very bad bearer.

No. 18. *Little Rousselet*. (*Le Rousselet*, QUINT.) is of a middle size, handsomely shaped, though somewhat long; of a greenish yellow when ripe, with a dark blackish red on the sunny side. Its flesh is tender, and its juice so judiciously perfumed, as sufficiently distinguishes it from any other kind of Pear. The wood of the tree is weak, its shoots long, and its branches irregular: they are often killed in part, by the severe colds of spring in *Scotland*; yet in proper soils, and warm situations, it makes a tolerable dwarf, and an excellent standard: it does well on a wall, and bears plentifully when old.

No. 19. *Scots Cornuck* is large, and headed, flat towards the eye, and tapers to the stalk, which is thick and short, of a yellow colour where not exposed to the sun, but of a bright red where it was exposed. The flesh is tender and melting; its juice is of an agreeable sweetness, which is heightened by a fine aromatic flavour: it ripened in the end of *August* 1762. The tree is hardy, vigorous, and grows regularly: it is a great bearer.

No. 20. *Grey Cornuck* differs little from the above in shape, taste, or flavour; though it is easily distinguished by the grey colour, as its name denotes: it is likewise near a fortnight later in ripening. It was ripe the beginning of *September* 1762.—The appearance of the tree would persuade us that it is a different kind from No. 19. as its branches are smaller, more numerous, and the tree grows larger. The above Pear-trees were probably first raised in *Scotland*, as neither of the kinds seem to be contained in any of the *French* or *English* catalogues that I have perused. They are excellent Pears, not inferior in goodness to any Summer-Pears whatever. This kind is also an excellent bearer.

No. 21. *Longoville* is nearly round, though flattened towards the eye, and protruded towards the stalk, which is thick and short: it is a large Pear, of an iron colour

where exposed to the sun, and of a yellow colour on the opposite side. Its flesh is tender and full of juice, which is an agreeable intermixture of acidity and sweetness. This Pear was ripe the beginning of *September 1762*. The tree produces many long small branches, which are placed widely; and the bearing spurs on them are placed at a considerable distance from one another. The trees become very large; and when old, they are constant, though not great bearers. They are fittest for standards, and make a fine appearance with their branchy and wide extended heads. This Pear-tree is said to have been originally brought from *France*, though it is not found described in any of their catalogues.

No. 22. *Red Pear-Robert* (*Pyrus fructu turbinato, carne tenera saccharata*, *TOURN. Muscat Robert*, *QUINT.*) is not very large; it is headed, the eye somewhat depressed; it is protruded towards the stalk, which is long, straight, and tolerably thick; where exposed to the sun, it is of a crimson colour, but striped with red and yellow on the opposite side. Its flesh is tender, sweet, and musked. It was ripe the beginning of *September 1762*. The tree generally grows vigorously, and bears well.

No. 23. *Grey Honey-Pear* is nearly round, being somewhat flattened towards the eye, but perfectly round towards the stalk, which is short and thick. Its colour is a brownish green, or russet-grey; the flesh is soft and sweet: when it continues any time unconsumed after it is ripe, it turns mealy. It ripened the beginning of *September 1762*. The tree grows well, becomes very large, and bears plentifully.

No. 24. *Early Achan* is so called from its resemblance to the late Achan, which is much better known in *Scotland*. Its shape is regular, round at the middle, with a small depression towards the eye: it is also protruded towards the stalk, that is short and thick: its colour is a dark red and yellow: it is shaped like the Achan. Its flesh is tender and sweet, though it is but an indifferent Pear. It was ripe the beginning of *September 1762*. The tree is a moderate grower, its wood is strong, and it is a great bearer.

No. 25. *Skindleless Pear* (*sans peau*, *QUINT.*) is a long-shaped Pear; for the greater part of a dark red colour: its

its pulp is tender and delicate, and its juice sweet and agreeable. The tree grows regularly, and looks handsome in whatever manner you train it.

No. 26. *Hanging-Leaf* is a beautiful Pear, of a perfect round figure, were it not a little protruded towards the stalk, which is short, and of a middling thickness. Its colour is red and yellow: its substance is tender and juicy; and a delicious sweetness is found in its taste. It was ripe the beginning of *September* 1762. The tree grows very large, and makes a beautiful standard, but is no great bearer.

No. 27. *Scots Bergamot* is a large Pear, which would be perfectly round, were it not a little depressed towards the eye: its foot-stalk is thick and short: its colour is yellow and red: its flesh is tender and juicy; and its juice of a very agreeable sweetness. The fruit were ripe the beginning of *September* 1762. The tree produces short thick branches, and is a good bearer; when it is properly managed at first, it makes a fine round full dwarf. It will also do very well as a half-standard, or standard, and is in every shape hardy, and a good bearer.

P E A R S FOR AUTUMN.

No. 1. *Keather* is a Pear of a middling size, finely rounded off to the eye, and of an oblong shape to the foot-stalk, which is generally somewhat protruded to one of the sides, and is short and small. Its colour is mostly yellow: its substance, though viscid, has an agreeable juice, which is very tasteful. It ripened the middle of *September* 1764. The tree grows regularly, becomes very large, and makes a beautiful standard. The *Keather* bears but seldom; however, in favourable seasons, it produces very large crops.

No. 2. *French Cornuck* is a large Pear, regularly rounded off towards the eye, which is in some of them a little depressed. It is of an oblong form to the stalk, which is generally short and straight. This Pear has commonly one side larger and longer than the other: it is of a red, dun, and yellow colour; the flesh is tender and full of juice, which has a pleasant taste. It was ripe the middle of *September* 1764. The tree both grows well and bears well. It may be trained in any shape you please.

No. 3. I received the following Pear under the name of *Crawford*: it is large, and bellied; rounded off to the eye, which is depressed; tapers off gradually till it approaches near to a stalk, when, after a small round, it flattens towards it. The foot-stalk is of a moderate length, and generally straight: its colour is red and yellow; its flesh is tender, juicy, and sweet. This is as beautiful a Pear as grows, full as large as the *Jargonelle*, or perhaps the *Winter Good-Christian*. It was ripe the middle of *September* 1762. The tree produces its branches long and wide: they are of a middling size; it is not very beautiful, but bears well.

No. 4. *Watery Pear*. Under this name I received a kind of fruit which appears to me to be well intitled to the name of *Russet-Pear*, from its colour: for it is of an iron-colour to the sun, and something ash-coloured on the shaded side. It is of a middling size, headed, and rounded off to the eye; that is, a little protruded: it gradually diminishes towards the stalk, which is straight, and of a middling length. The substance of this Pear is tender, and full of juice, which is agreeably musked. It ripened the middle of *September* 1762. The tree grows regularly, and is a constant and great bearer.

No. 5. I received under the name of the *Robin*, a Pear which perhaps deserves the name of the *Muscat Robert*, as it does not greatly differ, either in shape, colour, or taste, from the one of this name which is described by *Quintinye*. Its figure is very near round, though a little flattened to the eye. Its foot-stalk is protruded from one side of the Pear, and makes an acute angle with the other side; it is short, and of a middling thickness. The colour of this Pear is dark red and yellow; the substance is very tender and full of juice, that is finely musked, and of an exceedingly agreeable sweetness. It ripened the middle of *September* 1762. The tree grows tolerably large, and is a good bearer.

No. 6. *The Round Pear* is small, perfectly globular, with a very short pedicle. It is ash-coloured and yellow: its flesh is tender, sweet, and musked. It was ripe the middle of *September* 1762. The tree, in its growth not a little resembles the *Scots Bergamot*, only its wood is smaller, its branches more numerous, and it grows faster: it is a tolerable bearer.

No.

No. 7. *The Vinous Pear* is tolerably large, and almost round; the one side is generally bigger than the other, by its forming a protuberance before sending of the stalk, which is long and crooked, and placed nearly at right-angles with the little side. Its colour is red and yellow; its flesh is tender and melting; and its juice, which is copious, is exalted by a vinous flavour, joined to a very agreeable mixture of sweet and acid. The Pear was ripe the middle of *September* 1762. The tree grows moderately, and bears indifferently well.

No. 8. *Chapman-Pear* is equally rounded off; but the one side forms a much larger circle than the other; and this renders the pedicle of the Pear, which is placed obliquely, shorter on one side than the other. Its colour is a shining red and yellow; its substance is viscid, dry, and sweet. It ripened the middle of *September* 1762. The tree grows as well as bears tolerably well.

No. 9. *Elshin-bast*, or *Good-Man Pear*, is a large fruit, bellied, flattened a little towards the eye: it tapers off for some way, and then is rounded off to its foot-stalk, which is small and short. It is of a green and yellow colour: its flesh is hard and dry, but of a very agreeable sweet taste. It was ripe the end of *September* 1762. The tree grows vigorously, becomes large, and bears plentifully.

No. 10. *Great Russelet*. This Pear differs from the Little Russelet, by being thicker and shorter: the skin is not so polished, but more spotted: it is also later in ripening, and the juice is not so delicious. The tree produces a few strong woody branches thinly placed, and of great length. It is entirely unlike the Little Russelet, for it is just the reverse. It is a bad bearer. This fruit is called in some places of *Scotland* the Grey Goose. *Quintinye* probably was not acquainted with this Pear; or perhaps he did not think it deserved a place among his good Pears.

No. 11. *Orange Bergamot* is of the middling size, nearly round, though it has its eye considerably depressed, and is protruded towards the stalk, which is generally long, thick, and straight. Its colour is red and yellow; many of them have a furrow down the middle. Its flesh is tender, and full of a musked juice, which is deliciously sweet.

sweet. It was ripe the beginning of *October* 1762, on a north-west aspect. The tree thrives well in every form, and is a great bearer.

No. 12. *Robine* (*Pyrus fructu globoso, sessile, ex albido, flavescente, saccharato, odorato*, *TOURN. Robine*, *QUINT.*) is of a large size, and of a long shape, often keeping nearly the same thickness from one end to the other. It is rounded off to the eye, which is a little depressed, particularly on one side; and also to the stalk, which is depressed in like manner as the eye: its pedicle is short and thick. The colour of this fruit is a whitish yellow, and the skin is soft: its substance is breaking, without being hard, and its juice is sugared, and charmingly perfumed. The fruit were ripe the beginning of *October* 1762. The above Pear agrees in substance and taste, but differs widely in the shape and size from the *French Pear* of this name. The tree makes a beautiful dwarf, espalier, or standard, for it grows moderately. The tree is generally old before it comes to bear.

No. 13. *French Bergamot*. I here describe a Pear which grows under that name in *Scotland*: it is almost round, being only a little flattened towards the eye, and a little protruded towards the foot-stalk, which is short and thick. Its colour is red and yellow: its flesh is tender and full of juice, which is sweet, and of a fine relish. It was ripe the beginning of *October* 1764. The tree produces but few wood-branches, that are rather delicate. When the tree is thriving, it bears tolerably.

No. 14. *Late Scots Cornuck* is a large fruit, of a true Pear-shape, being rounded off from the middle to the eye, and tapering from thence to the stalk, which is very short, and sometimes waved. Its colour is a bright red and yellow, and its skin is smooth and shining: its flesh is tender and juicy, and its sweet taste is exalted with a vinous briskness. It was ripe the beginning of *October* 1764. The tree thrives well, and bears plentifully. Those who are skilful in the art of pruning, may train it into any shape they please.

No. 15. *Pear-Rose* is a small fruit, nearly round, with one side larger than the other. Its foot-stalk is of a moderate length and thickness: it is red, and of an ash-coloured yellow. Its substance is tender and dry, and is very

very pleasant, by an aromatic and sweet taste being combined. It ripened the beginning of *October* 1764. There is a Summer-Pear of this name, with a long stalk, which is far inferior to this in goodness. The tree thrives well, and bears tolerably.

No. 16. *Vicar* is an oblong Pear, produced to the stalk, which is long and straight. Its colour is yellow, red, and striped: its flesh is tender, sweet, and musked, but is rather too dry. This Pear ripened the middle of *October* 1762. The tree grows regularly, and has numerous branches, which are surrounded with very fertile spurs; by means of which it is a constant and great bearer. This tree is sometimes destroyed by too intense heat.

No. 17. *Autumn*, or *English Bergamot* (*Pyrus fructu sessile, saccharato, odorato, in ore liquescente*, *TOURN.* *La Bergamotte*, *QUINT.*) is a large round Pear, generally flattened a little towards the eye, and somewhat depressed to the foot stalk, which is short and thick. It is of an iron-green and yellow colour: its flesh is tender, and full of juice, of a delicious sweetness, and an agreeable perfume. This Pear ripened the middle of *October* 1762, on a south-east aspect wall. The tree is neither fit for being trained as a dwarf or espalier, but makes a beautiful standard or wall-tree, and is a plentiful bearer.

No. 18. *Muir-fowl-egg* is a large Pear, which is nearly round, being only a little flattened towards the eye, which is somewhat depressed: but it is finely rounded off to the stalk, which is long, large, and generally crooked. Its colour is red, green, and yellow; its flesh is tender and juicy: it is reckoned delicious by those who are fond of much acid in Pears; for my part, I think it over-abounds in this fruit. It was ripe the middle of *October* 1762. The tree grows vigorously, producing many long branches, which are thinly placed in its head: they are in time covered with spurs, which bear copiously when the tree is old.

No. 19. *Gray Good-Wife* is a Pear of a middling size, which might be reckoned round, were not its eye a little depressed, and its shape a little protruded towards the stalk, which is of a moderate length and thickness: it is of a brown red on the one side, and of a greenish yellow

on

on the other. Its substance is soft and tough, yet it melts in the mouth: its juice is sweet, with a very agreeable perfume, which is peculiar to this Pear. It was ripe the middle of *October* 1762. The tree grows vigorously, makes a beautiful appearance, and is a constant and great bearer.

No. 20. *Cressan* (*Pyrus fructu sessili, e viridi flavescente, utrumque umbilicato, in ore liquescente*, Tourn, *Crasane*, QUINT.) is large and semiglobular, flattening almost its crown to the eye, but nearly circular to the stalk, which is long, and generally straight. It is of a greyish colour, mixed with red spots; when ripe, the skin is rough; its seeds are remarkably large; its flesh is exceeding tender and soft; the juice is copious, sweet, and brisk. This Pear does not agree with the description that is given from *Tournefort*. It was ripe the middle of *October* 1762, on a south-east aspect wall. The tree is only fit for a wall in *Scotland*, where it produces too much wood, and is but a very indifferent bearer.

No. 21. *Verte Long*, or *Long Green Pear*, (*Pyrus fructu odorato, in ore liquescente*, Tourn. *La Verte Longe*, QUINT.) is large and long, of a true Pear-shape, with a thick stalk of a middling length. It is generally of a green colour, freckled all over with small spots: these spots are white where the skin is coloured by the sun, and of a dark green where it is yellow, which colour the green acquires in ripening. These Pears are of a russet colour next the sun: their pulp is melting, soft, and juicy, and the taste, in some seasons, is sweet and agreeable; in others, it is insipid. It ripened the middle of *October* 1762, on a south-east aspect wall. The wood of the tree is strong, and grows regularly. The *Verte Long* makes a beautiful appearance in every shape, and bears admirably well.

No. 22. *Pound Pear* is a very large Pear, of a semiglobular figure, being flattened towards the eye, which is a little depressed, but perfectly circular to the stalk, which is small and short. The colour of this charming Pear is red, green, and yellow; its substance is between tender and viscid; its taste is sweet, and in its juice is something of a very pleasant aromatic. It was ripe the end of *October* 1762. The tree thrives vigorously, and bears well in warm situations and proper soils.

No,

No. 23. *Swan's-Egg Pear* is of a middling size, oblong and roundish, but a little protruded towards the stalk, which is short and small. It is of a dark green colour: the pulp is soft, and the juice, which is copious, is of a very agreeable sweetness. It ripened the end of *October* 1762, on a south-east aspect wall. The branches of the tree are apt to canker and die in part, or entirely; neither does a wall save it from this fate. Even when it is in a disfigured condition, it bears tolerably on any of the branches that remain alive. How much to be lamented is it, that this tree should prove so delicate, when we have few kinds of Pears that excel the *Swan's-Egg*!

No. 24. *Muscat Fleury* (*Pyrus fructu globoso, ferrugineo, carne tenera sapidissima*, *TOURN. Muscat à longue queue d'automne*, *QUINT.*) is a very small Pear, of an almost globular figure, and of a dark red, or rather brown colour, with a long foot-stalk. Its flesh is tender and juicy, with such a delicious perfume as is to be found in no other Pear that I know of. This Pear generally ripens about the middle of *October*. The tree is not beautiful, for it produces long, naked wood-branches, that have but few bearing spurs on them; yet it bears a great many fruit, for they are generally placed in clusters. It is called in some places of *Scotland* Pear-nut.

No. 25. *Dean Pear* (*Pyrus fructu turbinato, sessili, flavescente, in ore liquecente*, *TOURN. Doyenne*, *QUINT.*) is reasonably large, rather long than round, of a greenish yellow colour, which is little altered by the sun. Its juice is sweet, and a little musked, but has not a very high flavour. This fruit is apt to turn dry and meally, after it is past its time in maturity. The tree is beautiful, and bears much fruit, especially on a wall.

No. 26. *Swift Bergamot*. This Pear resembles the Autumn Bergamot in shape and size, but is easily distinguished from it by a fine striped colour: its substance and taste are little different from those of the *English Bergamot*; but what intitles it to a place in this collection, is, that the tree is hardier, and will make a fine appearance in the open air in any shape that you please to form it into; and it will reward the labour of the cultivator, for it is a good bearer.

No.

No. 27. *Monsieur John*. Of this are reckoned two kinds, the white and the grey. (*Pyrus fructu tuberoso, sessili, saccharata carne dura*, Tourn. *Le Messire Jean*, QUINT.) These Pears are tolerably large, their substance is hard and breaking, and their juice is sweet. It has been objected to them, that their substance is sometimes gritty. The trees are hardy, they make a good figure in every shape, when properly trained, and generally bear well.

No. 28. *Marquis's Pear* (*Pyrus fructu tuberoso, sessili, e viridi flavescente, maculis nigris consperso, carne tenera saccharata*, Tourn. *La Marquis*, QUINT.) is very large and handomely shaped; the head is flat, the eye is small and sunk in, the belly big, and the size diminishes gradually to the stalk: the skin is rough and yellow, with red spots: when ripe its flesh is tender and fine; its juice is plenteous, and agreeably sweet. The tree makes a good standard, dwarf, or espalier, and is a tolerable bearer.

No. 29. *Beurre* (*Pyrus fructu suavissimo, in ore liquefcente*, Tourn. *Beurre*, QUINT.) is a large Pear, of an oval shape, with a short thick foot-stalk. The colours of this species are so various, that they have occasioned the name of grey, red, and green, among the nurserymen: its flesh is fine and delicate, and its taste exalted by a sweet aromatic perfume. It ripened the end of October 1762, on a south-east aspect. The wood of the tree is weak, the branches are numerous; it thrives well on a wall, though it is even there no great bearer. There are perhaps but few soils and situations in Scotland, in which the *Beurre* will thrive and bear in the open air.

P E A R S F O R W I N T E R .

No. 1. *Brier-Bush* is a small Pear, nearly round, with a short thick foot-stalk: when ripe, it is of a red colour where it was exposed to the sun, and yellow on the other side: its flesh, though hard, is juicy, and of an aromatic tasteful sweetness. It was ripe the beginning of November 1762. The wood of the tree is small, the branches are numerous, the spurs on the branches frequent, and the tree is remarkably fruitful.

No.

No. 2. *Achan* is a large Pear, with a big belly; it turns less to the head, and flattens to the eye, which is a little depressed. It is somewhat protruded towards the stalk, which is of a middling length and thickness. Their colour is commonly a dark red, or very deep blackish green; but this varies greatly, as does also their shape, for I have seen them of a light green or yellow, with many depressions of different sizes on their surfaces: but of whatever colour they are, they have this in common, that the pulp is fine, soft, and free, full of a richly sugared and perfumed juice, which is of so excellent a relish, as at least equals, if it does not excell any taste that is to be met with in Pears. This Pear was ripe the beginning of *November* 1762, on a south-east aspect wall. The tree produces its wood regularly. Its shoots are long; they become full of spurs, which are placed all round them, near to one another; and it is generally a great bearer when old. The *Achan* is hardy, and makes a beautiful figure in every shape, when it is properly managed, whether it make its appearance in the fruit-garden or orchard.

No. 3. *Winter-Thorn*. (*Pyrus fructu magno pyramidalto, albido, in ore liquefcente, saccharato, odorato, Tourn. L'Espine d'hyver, QUINT.*) Its shape is long, nearly pyramidal, prettily rounded off at each end: its skin looks and feels like fatten: the colour is between green and white, or rather a shining yellow: its flesh is free and tender; and its juice is a delicious mixture of sweet and acid, joined to an admirable perfume. This Pear ripened the beginning of *November* 1762, on a south-east aspect wall. The tree produces long regular branches, that are thick set round with bearing spurs; among these, are produced some few thorns, or rather sharp-pointed branches. It makes a fine appearance on a wall, and is a good bearer.

No. 4. *Virgoleuse* (*Pyrus fructu longo, e viridi flavescente, in ore liquefcente, saccharato, Tourn. La Virgoule, QUINT.*) is beautiful and large, of a true Pear-shape, but in some inclining to round. The colour is green when they are gathered from the tree, but turns yellow as they ripen. The flesh, when it comes to perfection, is tender and melting, full of a sweet and sharp juice, which

which is a little perfumed. The Pears of this kind that fall off too soon from the tree, though they become wrinkled, are excellent. But this Pear in general is apt to contract the bad smell and taste of any thing in its neighbourhood; for which reason it should be kept carefully at a distance from any thing offensive in smell or taste. This Pear ripened the beginning of *November* 1762, on a south-west aspect wall. The tree has a shining bark, produces plenty of small regular wood-branches, and makes a beautiful appearance on a wall, when properly trained: it is no great bearer till old.

No. 5. *Chassery* (*Pyrus fructu globoso, citriforme, flavescente, punctato, in ore liquescente, saccharato, odoratissimo*, *TOURN. La Lescasserie, QUINT.*) is large and long-shaped like a lemon, of a yellow colour when ripe. Their substance is fine, melting, and juicy, of a highly perfumed and aromatic sweetness. This Pear ripened the beginning of *November* 1762, on a south-east aspect wall. The wood of the tree is weak, its branches are few, and produced at a distance from each other: it is no great bearer till after it has stood some years, when it bears plentifully. It is only fit for a wall in *Scotland*, to which it is easily trained, as it produces but few branches, and grows regularly, seldom producing any luxuriant branches.

No. 6. *Ambrette* (*Pyrus fructu globoso, sessili, ferrugineo, in ore liquescente, saccharato, odoratissimo*, *TOURN. L'Ambrette, QUINT.*) is nearly as large as the Winter-Thorn: it is round, and very various as to the length and thickness of the stalk. Its skin, which is rough, and of an iron colour when taken from the tree, becomes yellow when ripe. Its flesh is tender, juicy, and free; and its taste is of a delicious sweetness, which is exalted by an aromatic perfume. This Pear ripened the beginning of *November* 1762, on a south-east aspect wall. The tree produces few wood-branches, but many bearing ones, of which number are many of the thorns that it shoots out. It thrives well on a wall, as its wood is small and weak: it is a constant and great bearer.

No. 7. *Saint Germain* (*Pyrus fructu longo, e viridi flavescente, in ore liquescente*, *TOURN. La Saint Germain, QUINT.*) is very large and long; they are irregularly shaped,

shaped, and very various in their figures. We have commonly found them of a green or reddish colour, which turns yellow as they ripen: The pulp is tender, sometimes a little gritty; it is full of brisk pleasing juice; the sweetness of the taste being much exalted by a little acid. It was ripe the beginning of *November* 1762, on a south-east aspect wall. The tree produces many regular and beautiful branches: it makes a fine appearance in every shape, and is a plentiful bearer, as well in the open air, as on a wall.

No. 8. *The Round Conical Pear*, which I have named from its shape, being finely rounded off from its middle to the eye, and from the same part to the stalk, being perfectly conical: its foot-stalk is short; its colour is brown and yellow; its seeds are very small; its flesh is viscid, and of a sweet taste. It ripened the middle of *November* 1764. The tree thrives well, and bears well.

No. 9. *Round Winter-Pear* I have denominated from its shape, being nearly round, with a short, small, straight foot-stalk. It is of a yellow colour: the seeds are large, and its flesh tender, and of a very pleasant aromatic sweetness. It ripened the middle of *November* 1762. The tree thrives vigorously, and bears well.

No. 10. *The Oblong round Winter-Pear* is thickest about the middle, with its eye and stalk protruded beyond the circle: its foot-stalk is short and thick: in its shape it very nearly resembles the Swan's-egg: it is of a straw-colour: its flesh is tender and full of juice, which is of a delicious aromatic sweetness. It ripened the beginning of *November* 1762. The tree thrives well, and produces much fruit.

No. 11. *Winter-Bergamot* in shape and size nearly resembles the Autumn-Bergamot, but differs from it, by being much lighter in the colour, which is a greenish yellow. Its foot-stalk is short and small; its substance tough and viscid, dry, and unpleasant to the taste. It ripened the beginning of *November* 1762. I shall say nothing of the tree, as no farmer ought to plant so bad a kind.

No. 12. *Colmar* (*Pyrus fructu tuberoso, e viridi flavescente, punctato, saccharato*, Tourn.) is very large; its head is flat, with the eye placed pretty deep; its belly

is larger than the head: from this, the size diminishes irregularly to the stalk, which is short and thick. The colour of the fruit is green; the skin is spotted, soft, and smooth; the flesh is tender, and the juice sweet and agreeable. The fruit may be eaten from the beginning of *December* to the month of *April*. The tree will succeed on any aspect, though the fruit will hardly acquire the proper degree of maturity on any other than a south-east, or south aspect; nor will this fruit thrive well in *Scotland*, unless in low warm situations, and good soils. The bark of the tree is of a dark brown colour, with white spots.

No. 13. *Green Sugar-Pear* is rather long than round: it is flattened towards the eye, and conical to the stalk, which is long, and pretty thick. It is of a green colour; its flesh is tender, and full of a very agreeable sweet juice. It ripened *December* 2d, 1765, on a west-north-west aspected wall. The tree produces long wood-branches, which are surrounded with spurs that bear plentifully.

No. 14. *Saint Martial* is a very large and long Pear, of a pyramidal shape. It is of a bright straw-colour, with some black spots intermixed. The pulp is sweet and juicy, and of a vinous taste. The tree can only succeed on the best aspects, even on walls; nor need we expect ripe fruit on any other than a south, or south-east aspect.

No. 15. *Winter Good Christian* (*Pyrus fructu magno, pyramidato, e flavo nonnihil rubente*, TOURN. *Le Bon Cbrelien d'hyver*, QUINT.) is of a beautiful figure, long, and pyramidal; it is from three to four inches broad, and from five to six inches high; and, according to *Quintinye*, the weight is from one to two pounds. It is of a carnation colour, with a yellow ground when ripe; its flesh is breaking, and sometimes tender; its taste is agreeable, having plenty of a sweet perfumed juice. The tree grows vigorously, is hardy, and bears very large fine fruit on a well aspected wall, where it can alone be planted to advantage in *Scotland*.

N. B. The Pear-trees in this catalogue were grafted on free-stocks.

No.

A P P L E S.

No. 1. *Teuchat-egg* is a small yellow Apple, of a reddish hue where exposed to the sun: it is in shape not unlike a Grey Leadington; its pulp is tender and juicy, its smell is chearing, and its taste pleasant, when planted on a north wall. The fruit will continue on the tree till the month of *October*; and the longer they hang on the tree, their smell and taste become better. This fruit, when produced in the open air, is commonly ripe in the beginning of *August*. The tree produces small regular branches, and makes a good appearance in every shape; it is also a great bearer.—There is also a Winter-Apple which exactly resembles the above, and is generally called by the name of the *Winter Teuchat-egg*. Its substance is tender, juicy, and sweet. It was ripe the beginning of *March*, 1763. The tree grows vigorously, and bears well.

No. 2. *King-Apple* has little to boast of as to its colour; but it is pretty large, and of a good taste for the season.

No. 3. *Magdalene-Apple* is a fair and beautiful fruit. Its colour is yellow, and striped with red: the flesh is free and juicy, of a pleasant smell, and delicious taste. The trees of the two preceding kinds much resemble one another; that is, the wood-branches of both are strong, they grow vigorously, neither are they bad bearers.

No. 4. and 5. *Summer Calvilles* (*Malus fructu magno, dilute rubente, et inodoro*, *TOURN.* *Calvilles d'Este*, *QUINT.*) are of two kinds; the one of a white colour, the other of a red. They are both of them large long fruit, shaped alike, and flattened at each end. The flesh of the red is not coloured, as in the Autumn Calville. Both of them are very beautiful, and the taste of their substance is pleasant and agreeable. The trees are rather delicate, and apt to suffer from the colds in spring that so frequently happen in *Scotland*. They are tolerably good bearers.

No. 6. *Van Pippin* is a round and small Apple, finely coloured with red and yellow. Its pulp is free, juicy, sweet, and agreeable. The wood of the tree is weak, its branches are regularly placed, so that its figure is beautiful. It is hardy, and bears well.

No. 7. *Ozlon Pippin* is pretty large, roundish, and flat at each end. It is of a light yellow colour; the flesh is firm, with a sweet and pleasant juice. The tree is generally vigorous, and its growth regular: it also bears well.

No. 8. *Rembource* (*pomus prægrandis, præcox, tenerrima*, TOURN. *La Rambour*, QUINT. is a very large French Apple, striped with red on the one side, but green on the other. The substance of this fruit is free, and the taste agreeable. The tree does best as a standard.

No. 9. and 10. *Autumn Calvilles* (*malus fructu magno, intensè rubente, violæ odore*, TOURN. *Les Calvilles d'Automne*, QUINT.) These Apples are large and long, turning less towards the eye; in shape they exactly resemble each other, but one of them is of a red colour all over, and the other of a white. The first has its substance of a red colour, even to the core. The flesh of both is breaking, and of a pleasant taste, and charming flavour. Mr. Switzer has asserted, that the white is the best. The trees of both kinds are rather delicate in Scotland, yet they bear tolerably.

No. 11. *Grey Leadington* is of a middling size, a longish shape, that turns smaller towards the eye. The colour of the true kind is dark green or grey: they are often freckled; the flesh is firm, melting, juicy, sweet, and agreeably perfumed: the smell is delightful. The pippins are placed in the center, in very large cells. This Apple is truly good, superior to any other Apple, if we except the Golden-pippin and Golden-rennet; nor is it excelled by either of these kinds. The tree is hardy, grows regularly, and bears tolerably well. It will succeed in every manner, whether you plant it as a standard or half-standard, on a wall, as a dwarf or espalier.

No. 12. *Carpandy* (*Le Courpendu*, QUINT.) is of a good size and fine shape; of a grey or dark red on one side, but a bright red on the other: the flesh is delicate, its juice very sweet, and of an agreeable flavour. When it turns wrinkled, it is good for nothing; for it loses its flavour before it begins to be wrinkled. This name is given to a fruit in Scotland, which is far inferior in goodness to the French kind. The tree thrives and bears tolerably well.

No. 13. *Apius's Apple* (*Malus fructu splendide purpureo*, Tourn. *L'Api*, QUINT.) is easily known by a lively red colour all over its surface, a thin and delicate skin: its pulp is soft, its juice sweet, and agreeably perfumed. This is a charming little Apple. The tree is beautiful, and a great bearer.

No. 14. *Golden-Rennet* justly merits the preference to the Grey and White Rennets, though both are good Apples. It is of a middling size, roundish, but rather long, somewhat flat at each end, with the eye and stalk a little depressed. Its colour, when ripe, is a dark yellow, with a little russet, or very dark red on the sunny side: its flesh, though firm, is melting, its juice deliciously sweet, and of a fine flavour. The wood of the tree is strong, it grows regularly, and bears well.

No. 15. *Golden-Pippins* are small, nearly round; some of them are longish; the eye and stalk are a little depressed. They are of a beautiful yellow colour, and spotted; their flesh is firm, but melting, not very juicy: their taste is an agreeable mixture of sweet and sour, joined to a rich flavour. The tree grows regularly, and where it thrives is very beautiful, but is apt to die down every spring in part, where the situation is cold. Notwithstanding which, it is generally a good bearer: it does excellently well on a Paradise-stock, whether planted on a wall, as a dwarf or espalier.

No. 16. *Winter Pear-Mains* (*Malus fructu sessili, rubro, saccharato, suavissimo*, Tourn. *Les Drue Permeins d'Angleterre*, QUINT.) are of a middling size, nearly round, only a little depressed towards the eye and stalk at each end: their coat is russet-yellow when ripe, and of a red colour towards the sun; their substance is tender; their juice of a vinous briskness, joined to a very agreeable mixture of acid and sweet. This delicious fruit was ripe the end of *October* 1762. The tree thrives well, and bears well.

No. 17. *Royal Pear-Main* exactly resembles the above in shape, size, and colour, nor does it differ much in its qualities. It ripened the beginning of *November* 1762. This tree is delicate, and apt to suffer in one part or other, whenever the spring is cold; yet it bears well.

No. 18. *Non-Pareille* is a pretty large Apple, round, except the depression of the stalk and eye. Its colour is a russet-red towards the sun, and a dark yellow on the other side: the flesh is firm and melting; the taste is brisk, and very pleasant. It is in eating for several of the winter-months, and all the spring-months; nay, if it is carefully kept, for some of the summer-months. The tree deserves the same character that has been given No. 15, when treating of the Golden-pippin.

No. 19. *Naked Apple* is a beautiful fruit, broad towards the stalk, which is somewhat depressed, and turns narrower to the eye, which is placed on its crown; that is, a little flattened. Its colour is yellow, its flesh breaking and tender, and its juice very pleasant to the taste. It may be eaten from the beginning of *December* to the month of *May*. The tree in spring is late of protruding its foliage and blossoms, which gives it a good chance for bearing in many bad seasons, when the early flowers of the other kinds have been destroyed by the severity of the cold, (a fatality often experienced in *Ireland*.) The wood-branches of the tree are small; it grows regularly, and makes a fine appearance in every shape in the fruit-garden. The tree is hardy, and generally bears well.

No. 20. *Salmon-Apple* is a fruit of a middling size, thickest not far from the stalk, to the depression of which it is gradually rounded off: it turns smaller to the top, and flattens to the eye. It is of a bright red colour on the one side, which fades into a yellow on the other. The substance is breaking and tender, and the juice of a brisk and agreeable taste. The fruit is in eating in *December*, and continues good for many months. The tree grows regularly, and is generally a good bearer.

Q U I N C E S.

The following kinds are to be met with in the nurseries; but as I have not studied the fruit, I shall give the kinds and their characters from Mr. *Switzer*, who was no bad judge of fruit.

No. 1. *The Portugal Apple-quince*. It is so called from its shape, and the likeness of the fruit to an Apple. This is the best of any of the Quinces, being a large yellow fruit, tender, pleasant, and soon boiled.

No.

No. 2. *The Portugal Pear-quince*; it is denominated from the resemblance in shape to a Pear: it is little inferior in goodness to the other.

No. 3. *The Barbary-quince* is good, but small.

No. 4. *The Lyons-quince* is large, of a yellow colour, and good.

No. 5. *The Brunswick-quince* is large and white, but it is inferior in goodness to the *Portugal* kinds.

No. 6. *The English-quince* is downy all over its surface, is often stony in its substance, and is not comparable to the other in goodness.

M E D L A R S.

No. 1. *The Great Dutch Medlar*. Its fruit are the largest and best of any. The tree grows vigorously, though irregularly, and is generally a good bearer. It has no thorns on the branches.

No. 2. *Common Medlar* has thorns on the branches; the fruit, though smaller than the former, are good. This tree grows more regularly than the preceding, and will make either a handsome standard, half-standard, or dwarf.

No. 3. *Neapolitan Medlar, or Azerole*. This kind came from *Italy* to *Britain*. The fruit looks well, and is pleasant to some tastes. The tree will thrive in the open air in warm situations, and makes a handsome appearance. All of the above kinds may be grafted on white Thorns, or Pear-stocks, and trained to any of the purposes that the planter shall incline.

G O O S E B E R R I E S.

No. 1. *Green-gaskins* are the earliest of any. They are large and smooth, of a delicious sweet taste, and an agreeable flavour: the bush has few prickles, and is a constant and good bearer.

No. 2. *Nutmeg-Gooseberry* is large, shaped like a Nutmeg, of a dark red colour when ripe: the skin is smooth, and the juice is very agreeable to the taste. The bush has not a great deal of prickles, and is a tolerable bearer.

No. 3. *The Yellow Gooseberry* is not so large as either of the above; it is round and smooth; when ripe, its juice is exceedingly sweet and pleasant. The bush is

easily trained, it grows regularly, makes a beautiful appearance, and is a constant and great bearer.

No. 4. *White Gooseberry* is very large and smooth, it is very juicy, and its taste not unpleasant. The bush grows regularly, and is a good bearer.

No. 5. *The rough round red Gooseberry* is the commonest of any: its juice is of a pleasant acid taste. The bush grows irregular, and the branches have frequent prickles on them: it is a good bearer.

No. 6. *The smooth red Gooseberry* is somewhat sweeter in its taste than the Rough-red, and the bush is not so prickly, neither is it so good a bearer.

No. 7. *The Bottle-Gooseberry* is a black or dark-red Berry, of a long form, smooth, and almost transparent. Its juice is different in taste from that of any of the above, and is very agreeable. The bush produces but few branches, the prickles are rare: it is a bad bearer.

No. 8. *The rough, or rather downy yellow Gooseberry*, which is very late of ripening, in good seasons is a tolerable fruit, but in bad is watery and sour, or insipid. The bush is dwarfish, has many prickles, and is a great bearer.

The best method of propagating any of the above kinds, is to make choice of a bearing branch with a long straight stem; cut it off sloping from the bush, and thrust in the cut end five or six inches into the soil, on a north aspected border. This may be done any time in the end of *September*, in the month of *October*, or even till the beginning of *April*. Cover the ground about your cuttings with litter or dung; and water them next spring and summer, if the weather is very dry. Such of them as have grown vigorously the first year, may be safely transplanted in autumn. But such as have thriven but indifferently, you may let stand another year, and then they will be provided with good roots, and succeed well when planted.

In training of them, keep your bush to a single stem, for a foot and an half, or two feet from the surface of the ground: leave only a few regular branches at equal distances on its head. If vigorous shoots make their appearance when the tree is young, and are ill-placed, break them off from the tree; which is easily done,

done, by pulling them in a direction from the branches or stem, where they take their rise. If, on the contrary, they are well-placed, and can contribute to forming a well-shaped head, encourage them. Be sure always to keep the heads of your bushes so thin, that the branches do not cover or cross one another. Shorten none of the branches, unless when they straggle too far, or hang down their extremities. The manner of clipping their heads with a pair of hedge-scissars, which I have seen put in practice, renders them too full of wood; the fruit becomes small, and are gathered with difficulty; whereas, when the bushes are trained as I have directed, they look well, bear plentifully, and the fruits are large and well tasted; and are gathered with ease.

The borders on which Gooseberries are planted, should be cultivated after the same manner as has been directed for the borders of fruit-trees; and dunging them once in two years, will make the bushes grow vigorously, and render the fruit much larger.

If any planter is desirous of raising new kinds of this fruit, they may be obtained by sowing the seed and rearing the plants till they come to bear, when every bush will produce a new kind of Gooseberry; I do not say a good kind.

C U R R A N T S.

Of these fruits we have four different kinds, all of which deserve to be planted, on account of their good qualities. They are the large *White Currant*, the *Red Currant*, the *Yellow Currant*, and the *Black Currant*. The Black are preferred by several persons to the three preceding kinds, as they believe that they are more wholesome. Their juice has indeed more sweetness, and less acidity. All of them are to be propagated, planted, and treated as Gooseberries.

Some trees of the White may be planted on the northern aspect border, which will retard their ripening, so as their fruits will hold, for a long time after, the others on more favourable aspect borders, are gone.

R A S P-

R A S P B E R R I E S.

They are distinguished by their colours, which are *Red, White, and Yellow*. The bushes should be planted at such a distance from one another, that the ground may be easily dug, or dunged between the rows; and only a single plant should be permitted to spring up from a particular root. The bush produces its wood in one year to the proper height, which bears fruit the next, after which it dies down near to the root; so that there is always in summer and autumn a young shoot of wood along with the bearing bush. And whenever the fruit are gathered, the old shoot should be broken off, or cut down near to the surface of the ground, and only one of the young shoots left for bearing fruit the succeeding year. By this management, and keeping the ground clean between the rows, the fruit will be large and good, provided the plantation is made on a north aspect.

S T R A W B E R R I E S.

No. 1. Is the *Red Wood-Strawberry*. The small plants of this kind are to be found in great plenty in the woods, generally on dry ground, where they bear without any culture. They thrive very well when transplanted into the garden, and bear tolerably. They are the earliest ripe of any of the kinds: they grow pretty large, and become flat on the opposite sides, and pointed, as they approach maturity: and when they have acquired this, they are of a dark red colour: their substance is melting, and their juice has an agreeable sweetness, joined to a good deal of acidity.

No. 2. Is the *Virginian Strawberry*. They are of a light red colour when ripe, if they are exposed to the sun; but of a pale red or white colour, if they grow in the shade. Their shape is nearly round, except where they are joined to the foot-stalk: they are large and juicy, and of a fine flavour, and delicious taste. The bushes of this kind are easily known by their large, smooth, shining leaves; they are great bearers, and in such general esteem, that they are every where to be met with.

No.

No. 3. Is the *White Wood-Strawberry*. They are round, of a good flavour, and pleasant sharp taste: they begin to ripen soon after the Virginian, and continue to yield ripe fruit until the middle of *September*, or later: when the season is favourable, you may gather ripe fruit from them till the month of *November*. They afford but few fruit at a time, but produce many through the season: their first fruit are the sweetest; for as the year advances, the acid becomes more copious, and their juice more watery and insipid.

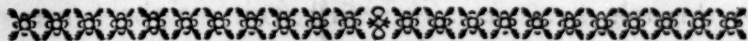
No. 4. Is the *Polonian*, or *Haut-boy*. It is by some people called the *Burgundy-Strawberry*. This is a larger fruit than any that have been yet described: it is generally shaped like No. 1. of a purple colour when ripe: its juice is sweet, and of a most delicious vinous taste, and charming flavour. Its fruit are raised on a high stem above the rough leaves. When they approach maturity, they should be tied to sticks to support them, for they turn heavy and fall down, and are either eaten or slimed by snails, or both; or they are spoiled by the soil, become mouldy, and rot.

No. 5. Is the *Chili-Strawberry*. The uncommon size of the fruit would recommend this Strawberry, did not the barrenness of the plant, and indifference of the fruit in *Scotland*, render it little esteemed.

Strawberries should have a rich good soil, and the bushes be planted in rows two feet distance from each other: the plants may be placed at one foot distance in the rows: the ground should be frequently laboured, and the richest manures, such as sheeps-dung, ashes, &c. should be laid on the ground in autumn, after the crop has been gathered, and the young plants pulled up and taken off: this ought to be dug down early the following spring. Let the ground be constantly kept free from weeds, and suffer only one or two bushes to grow on the same spot, keeping them always clear from runners. If you incline to have large fine fruit, reduce those that are found on the stems, to a small number soon after they are set, and pull off late flowers whenever they appear. By this management

Hautboys

Hautboys will become very large and fine; nor is it easy to conceive any thing more delicious than this fruit is, where they are perfectly ripened; for in richness of taste, not even Pine-apples can contend with them.

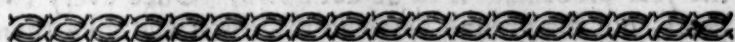


The North-aspected Wall, with the Fruit-trees, &c. best suited to it.

THE wall I would recommend for the southern inclosure of the kitchen-garden should be ten feet high, to be planted with the best of fruits, each kinds by themselves, and not intermixed. This wall must be well defended from thievish intruders, by a deep piece of water the whole length of the wall, or by a formidable hah, or sunk fence: and as a farther defence, I would have my gardener's, and his servants' houses here, that the fruits in season may be preserved by their watchful care in the night time.

On the north-side of this wall you may plant Currants, May-dukes, Morello Cherries, also some Dutch grafted Filberts as standards, thirty feet from the wall, to supply all the parts of this garden with plenty of fruit-bearing trees and shrubs; but be sure, when you plant out your grafted nuts on a border, let them be placed at twenty feet distance tree from tree; and let the border be dug up and well dunged every three years. Here also may be nurseries for Thyme, Hyssop, Lavender, perennial Marjoram, Rosemary, Sage, Winter-savory, and some other of those herbs, which in a better exposed part of the garden would be a nuisance. Nurseries are also here proper for your best sorts of Currants and Gooseberries, to supply deficiencies in the Currant espaliers, or north side-walls, or in the borders allotted for Gooseberries, taking care, to avoid confusion, to number the kinds of them exactly in your index, with written
or

or cut labels at the ends and tops of the rows of the several kinds. Here too may be planted Sorrel, Spiremint, Chives, Pepper-mint, and all other perennial herbs for the kitchen-use; the chief reason for planting these in this place, is, that when they are wanted early upon hot-beds, or upon more southerly exposures, they always take more kindly, and are sooner fit for use.



Planting and Management of Raspberries.

IN this part of the garden there may be a piece of ground allotted for a plantation of Raspberries, the best kinds of which are the red and the white fruiting kinds. There is a sort with late red fruit, but it is not such a good bearer as the two former sorts. I have also heard of a Raspberry which bears two crops in the year, the first in *June*, and the other in *October*, the last of which is said to be the best; some plants of these Raspberries we have in *Scotland*.

Raspberry plants are propagated from suckers, which their roots produce plentifully. When you design to make a full plantation of them, dig and trench your ground in *August* preceding, and turn it over again in *October*. The soil should be a very good hazelly loam, not too wet, or of stiff clay, nor on the other hand light and sandy, but of a middling consistence; and I would choose the ground to be new. Lay it up in ridges to get the frost in winter, which will mould it; the beginning of *March* work it again for planting, laying it as level as you can. When you take off your suckers from the mother-plants, take them singly, one by one, and not in clumps; prune their fibres, and cut down their tops to a foot and a half above the roots; but be sure to preserve all the under-buds which you observe nearest their roots: these are the rudiments of new suckers, and stems for fruit.

The planting Rasps too thick is a great fault, for thereby their fruit becomes small and ill-tasted; for, as they

they are very free shooters, and multiply fast, as they send from their roots many suckers, every one of which has two or three fruiting-branches, which would exclude the sun and air from ripening their fruits: wherefore, plant them three feet, row from row, and three feet, plant from plant; and at the end of September be sure to top their longest young branches, for if it is done later, the frost will injure the wound. The old bearing-wood of the year preceding is to be cut down. Once every two years, dig the ground between the rows, and give them some of the oldest rotted dung you have; by which management their roots being kept free from too many suckers, the old wood cut clear out, and the young shoots topt to two feet above ground, you cannot fail to have good crops of fruit every year. It is proper however to make new plantations of them once every fourth year. They love a shaded, rather than a sunny exposure, (but should not be planted under the drip of trees) for this reason I would choose to plant them in a spot of the garden which has a north-aspect.



A Collection of Exotics, which may be planted to supply the use of the South-wall.

THOSE who do not choose to have any wall upon the south of their kitchen-gardens, may plant clumps of exotic trees, which will stand abroad, and endure our severe winters, (of which the trees below are a catalogue) mixed with roses; and those clumps may seem to be the determinations of walks from the fields, beyond the haha. The exotics for such clumps are these, viz.

All the Sorts of Dogwood Trees.

Magnolias, two Kinds.

Tulip Trees.

Taccamaha Trees.

Cedar

Cedar of Lebanon.
 Ptelea, or Carolina Shrub Trefoil.
 Flowering Maple.
 White Beam Tree.
 Button Wood, or Cephalanthus.
 Sassafras Tree.
 Virginian Spindle-tree.
 Pistamin.
 Venice Sumach.
 Virginian Sumach.
 Catalpa.
 Benjamin Tree.
 Striped Arbor Vitæ.
 Striped Ash.
 Manna Ash.
 Flowering Ash.
 Blotched Elm.
 Blotched Plane.
 Arbutus.
 Double flowered Thorn.
 Double flowered Cherry.
 Chincapin Tree.
 Hickery Walnuts.
 Cornell Cherry.
 Itcas.
 Clethra Alnifolia.
 Azalia, or Winter-bloom.



The East-aspected Wall, with the Fruits best suited to it.

AS to east-aspected walls, there are many gentlemen, who rather choose, instead of them, to have an orchard of standard fruit-trees, on this side of the garden, to protect it from the westerly winds, and particularly in large gardens, where there is an abundance of other walling.

If

If then it is the fancy of the proprietor to have a wall, it should be ten feet high, faced with bricks, upon which Cherries may be planted, viz. the Hertfordshire Cherry, Morellos, Holman's-duke, and Black-hearts; and many sorts of Plums; the Orgillon Pippen-apples, &c. No sort should be intermixed with another, for the reasons given in treating of planting trees upon the south and south-west aspected walls; but Currants may be planted between each of them, except the Cherries.

The borders upon the wall should be ten feet wide, as well for the good of the fruit-trees, as to have some proper kitchen crops upon them. Here you may plant some of the Masculine Apricots, which, tho' they will not come so early, will by this exposure be firmer in the pulp, than upon a south aspect: and here may be planted the Cuisse Madame Pears, which will fruit very well; and a few red Nutmeg Peaches: to all which the same culture will serve, which I mentioned, when treating of them upon the other walls.



Directions for planting an Orchard.

SUCH as would chuse to have an orchard, may plant the trees the whole length of the garden, on the west-side, adding two hundred and fifty yards to its breadth, to give the trees sufficient room, otherwise they will not thrive. There may be a deep haha to the west, or some walling to defend the trees from thieves, when their fruits are ripe, the same as is prescribed to defend the south part of the garden. Next the haha, I would recommend the planting of some quick growing forest-trees, Planes, Ash, or Firs, at a good distance to the west of the orchard, and to the north, to protect the fruit-trees from winds. Fruit-trees in an orchard should be planted fifty or sixty feet from one another, and not in rows, but scattered elegantly up and down, to diversify

fify the view, and appear the more rural, which is more pleasing than in formal rows, where it seems as if nature had been neglected, and art had usurped her place.

I design therefore to give some directions for this small, or rather, accidental orchard, which may be of great use in protecting the kitchen garden from destructive winds.

It is true, that by planting the fruit-trees at such great distances as fifty or sixty feet, there will be the fewer; but then it is certain that these few will bear better crops, and the fruit will be larger and better flavoured, than in those places where the trees are planted at a less distance, and where the air is pent up, whereby such plantations are subject to blights, thin crops, dropping off of the fruit before ripe, and having a bad taste from rancid and bad air: all which may be avoided by planting the trees in the manner here advised.

You are likewise to consider your soil; if of clay, it will be fit for Pears; if of a good loam, it will do well for Cherries and Apples, and some Plums, so you may adapt your trees to your soil, or to the different soils you find in this piece of ground: at the bottom of this plantation, you may have some Quinces, which, besides being a good fruit for many family uses, is an excellent stock for grafting all the summer and autumnal Pears on; especially those which are very melting. The Portugal Quince is the best for eating or using in families, which should be budded or grafted upon the cuttings of the Apple-quince, as they give the best stocks.

The ground is to be plowed in *March*, and allowed one summer's fallow, not only to rot the sward, but to moulder the earth; and if of a dry texture, it must be plowed again pretty deep in *July*, and the same in *September*, to be planted in *October*, staking trees to prevent their wind waving, in which situation they must be kept for five or six years. For the first two years, lay some sward over the roots, to protect them from frosts in winter, the sun and air in spring and summer; and take it for a rule always to plant young trees, for though trees raised from nurseries, or other plantations, may sooner bear crops, yet it is certain they will never hold long, or give such large and sound fruit, as young trees will produce for many years.

The Apples I would recommend for this plantation, are the Orgillon Pippen, Yellow Ledington, Golden Pippen, Grey Ledington, Fulwood, Gogar Pippen, Potteraw Apple, Ten-shilling Apple from *Newcastle*, Pearmains, Redstreaks, Courpendues, White Janeting, Summer Queening, Strawberry-Apple, Summer red and white Calvilles, Codlings, Royal Codlings, Summer Marigold, Wheeler's Russet, Monstrous Rennet, Spice Apple, Embroidered Apple, Royal Russet: and the Pears, Achans, Burgamat, Sucre Vert, Swan's Egg, Crawford, Golden Knap, Carnocks, Lemon Pear, Jargonelle, Windsor, Green Chiffel, Red Muscadelle, Great Blanquett, Early Rousselette, Musk Robin, Green Orange Pear, *August* Muscat Pear, Rose-water Pear, Princess Pear, and some others: Plums, the Orleans, Hairflaws, Early red Damask, Horse Plums.

Notwithstanding what has been said in regard to the situation last mentioned; that I would recommend, is west of the kitchen-garden, and a piece of ground allotted for the purpose, planted in the same manner as has been directed, with rows of forest-trees, one hundred and fifty feet distant from the walls, to the west of the kitchen-garden, which will preserve the orchard from eastern blasts; and some rows of the same on the west of the orchard, to preserve it from west and north-west winds.



A Method of planting Orchards, as recommended by a French Writer; and the grafting of the Wilding on itself, for their coming early into Fruit, for Cyder Use.

UNDER this article of Planting, it may not be unnecessary, nor unentertaining to the curious, to have laid before them what has been observed by others in this article of planting extensive gardens, extracted from a foreigner. Thus proceeds the French writer:

As the hazard is great in planting from the nursery bed, the method that I advise removes all these inconveniences, and the practical part is as little difficult and troublesome as any other; for it is certain, that a stock that remains in the place where it was first raised,
always

always succeeds better throughout all the stages of its vegetation, than one that has been transplanted. The check this last meets with, and the change of soil, have necessarily such an effect upon it, as not only to retard its growth, but to alter its whole system. The fact is, that the stem being suddenly deprived of the nourishment that keeps it alive, falls into a kind of lethargy, and remains in that state, till the root has formed some new shoots, to give it a fresh supply of nourishment; and tho' it does not die, yet it is certain that the external parts of it suffer such an alteration by the sun and air, that they never recover, so as to return to their original state. From whence it follows, that it never becomes so vigorous as before, and that, in the course of nature, it cannot last so long. I go still further, and affirm, that whoever will make trial of the different effects of each, may perceive, that the fruit produced by trees planted in the first method will always lose something of their flavour. This opinion is even supported by the declaration of several nursery-men, who have often assured me, that the fruit they have sometimes gathered from standard trees that were designed to be transplanted, was much superior in flavour to any they had in their gardens; of this I was once an evidence, and not a little to my surprise. But, not to proceed on this particular, I shall return to speak of the strength and duration of trees: and to confirm my opinion, I shall make some observations on that head. It has been often observed, that a tree raised from the stone, and remaining where it was first planted, throws out its stem and head much faster, and more regular, than one that has been transplanted. It is well known, that an oak removed, never makes so fine a tree, as that which is produced from the acorn, and remains unremoved. It is observed also, that Cherries, which grow from stones, shoot away in a very different manner from those that are transplanted. I could reason from trees to plants in a garden, and mark an infinite number that thrive much better where they were first sown, than when transplanted; such for instances as Lettuces, Endive, Onions, all kinds of Artichokes, Pulses, and all sorts of roots. This is too evident to be disputed; but it may be said, that the consti-

tutions of all plants, no more than of all trees, are alike, which I grant; but I affirm, that the general order of vegetation is always the same, and that Nature is much better pleased with her free and uninterrupted productions, than when she is constrained and put out of her course. I shall give some proofs for what I have here advanced.

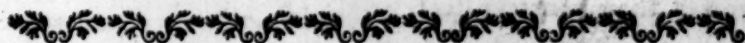
“An acquaintance of mine, some years since, ordered a bad piece of wood, of about ten or twelve acres, to be destroyed, where finding amongst the small wood, of which it was full, a great many plants of wild pears and apples, newly shot from kernels, he ordered such to be preserved as were fit for grafting, and in the spring following grafted them, some by slit, and others by rind-grafting, according to their size. The grafts took perfectly well, and in three years he gathered most excellent fruit from them; but I should observe at the same time, that in clearing the ground, he had the trees grubbed up as deep as possible, which gave the whole a kind of trenching, which was of great advantage to the young grafted trees; so that in ten years they formed heads as large as a transplanted tree does in twenty-five; and this plantation, made by chance, became an orchard of great profit, which I have often looked over and contemplated with great astonishment.

“I have one particular more to communicate, relative to the method of making plantations, in the neighbourhood of *Paris*, for cyder. Skilful people come here annually, to take up all the wild stocks they can find in the nurseries, of a proper size; these they carry home, and slit-graft at the end of two years, when they have taken good root. I have often met these people in the nursery-grounds, and upon talking with them, they assured me, that the fruits, grafted upon stocks, that were not afterwards removed, succeeded much better in all respects, than ready grafted trees. I am quite of this opinion, without reasoning any farther upon the causes; and I hope this little digression is sufficient to convince every one, that my opinion at least is not founded upon groundless conjectures.”

We shall here introduce what has been observed concerning the Wildings in our hedges, whose value to the cyder-

cyder-maker is not a little, as they produce that sort, which, amongst the lovers of that liquor, has always the preference. The scarcity of this kind has ever been lamented, from the variety of uses it is of value in, particularly that of improving other cyders, and giving them such spirit and strength, as not only renders them pleasant, but enables them to be kept a long time.

The Wilding, as it stands in our hedges, is many years before it comes into bearing, so as to be of value; but should we follow the method taken with our other fruit-trees, their perfection would be quickened, so as to be of use in seven years, whereas now it is above twenty before you can have fruit. In some measure to account for this quickness to maturity, which is procured by grafting, or inoculation, &c. that is the planting of one tree in another; one receives its support immediately from the earth, whose juices after passing through its fibres, are communicated to the other; this improves the texture, refines the taste of the fruit, and invigorates the tree so much that is inserted in it, by inoculation or grafting, that it produces fruit much earlier than it otherwise would have done.



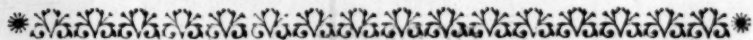
Of Espaliers.

HAVING laid out and furnished the different walls of the Kitchen-garden, I shall proceed to direct the Espaliers, and the fruits to be planted upon them in this garden. It was formerly the practice to have fruit-trees planted in the quarters, and in the borders which divided them; experience has shewn this practice to be wrong, for by these trees overshadowing the ground, the crops were destroyed; this inconvenience introduced into our *British* kitchen-gardens the method of planting fruit-trees upon espaliers.

An espalier is a trelace of wood secured in the ground, to which the branches of fruit-trees are fastened in an horizontal position, and in such a manner, as that the sun and air may ripen their fruits, as well as the crops in the quarters, round which they are usually planted, and are to run parallel with the walls of the garden, and

have the effect, to make this garden equal the beauties of the flower or pleasure-garden; for, in spring they delight us with their fine blossoms, and nothing can be more pleasing, than the noble fruits with which their branches are loaded in autumn.

It has been the practice, to have the Apples for espaliers grafted upon Paradise stocks: but this I would never advise, as such trees are not of any duration. The inducement for this practice is, that these trees take up but a small space of ground, and always grow dwarfish, which, in small quarters, where there is not sufficient space for larger, is a considerable advantage. In such small gardens it may do; but for larger, Apples grafted upon Codling, or upon the Dutch Paradise, or Bittern stocks, are to be preferred; as they will not grow so luxuriant, as Apples grafted upon Crab or Free stocks, they will bear sooner, and are much more under command. It will be necessary, that trees of an equal growth should be planted together, in order, the better to attend to the distances required by different trees; and as to the walks, I have already laid down the breadth for the larger, and with respect to the lesser, they should not be narrower than fourteen feet.



Apples, Pears, &c. the Sorts most to be preferred for Espaliers.

THE sorts of Apples best for espaliers, are, the Royal Codling, the Fulwood's Redstreak, Ledington's yellow and gray Pearmain, Courpendue's, Strawberry-Apple, Aromatic Pippen, Wheeler's Russet, Pile's Russet; and on south-east exposures, the Golden Pippen, Nonpareille, *Holland* Pippen, *French* Pippen, and Gogar Pippens. The Pears should be the summer, as the autumnal fruits, will not ripen upon our espaliers; but there are many Cherries will produce excellent fruit upon them, especially, if they are grafted or budded upon the Bird or Cornish Cherry. Here too, the Heart Cherry fruits much better, than upon walls. Pears should be planted at twenty-five feet distance, tree from tree, and
for

for some of the largest shooters, thirty feet distance will be necessary. By allowing nature its full liberty, the whole branch pushes out cursons or spurs, on which the fruits are produced; so that the only work necessary for a Pear-tree, is, to lay its branches horizontally, which will, in some measure, curb the wantonness of a strong soil, and a too luxuriant tree; a method much better than pinching and shortening branches, as is too often the practice with ignorant people.

As soon as the borders are well dug, and the ground is dry, plant Apples, Pears, Plums, and Cherries, in *October*, that they may strike root, before the severity of the winter comes on; laying turf with the grassy side downwards, or mulch, to protect their tender roots from frosts; nor should it be removed before the following *August*, when it may be dug into the borders. But if this season proves wet, you must delay planting until the end of *February* or *March*, observing to lay turf, &c. as has been just directed.

The espalier or trellace, should not be erected until the third year after planting; but in the mean time, it will be proper, to fix small stakes by the trees, to lay in their branches horizontally, as they are produced, which will save much trouble, when the trees are to be fixed to the espalier. For this purpose, I prefer well seasoned ash poles, whose ends have been well scorched in the fire, and pitched, by which means they will last a long time.

The uprights of the Espalier should rise six, seven, or eight feet above the ground, and at two feet distance, in a direct line from one another; the cross-rails are to be nailed to them at the distance of six inches; from one another.

The branches which are laid horizontally, must be at seven inches distance, for the largest fruits, branch from branch; for the lesser, six will be sufficient. Upon the best exposed part, you may plant some of the *Brussels* Apricot, which, in a good soil, will prosper well.

In a large garden, the quarters inclosed with the espalier, should not be less than three hundred feet square, and if an oblong, three hundred in length, and one hundred and fifty in breadth; in a smaller garden, one hundred feet square, will be sufficient; and, for these, chuse such trees

as have not been grafted above two years, and observing not to plant them above two inches deep in the ground below the graft; heading them down, at the same time, to four eyes above the graft, and planting trees of each kind by themselves. In the middle of the large quarters you may plant small espaliers for Currants, and Gooseberries.



Currants and Gooseberries, the Sorts most to be esteemed.

THE Currants, that are to be preferred, are, the *Dutch red* and white, and the large black, for jellies; all these are propagated by cuttings.

The Gooseberries are, the *Great Chrystal*, the large *Oblong Yellow*, the *Campaign* or *Smooth Black*, the *Green Gascoigne*, the large *Oval Red*, and the *Hairy Red*: these are likewise propagated by cuttings, taken in *February* from good bearing branches, which you must have previously marked, when in fruit. These cuttings must be taken seven or nine inches long, to be planted four inches deep, in a good light fresh earth, where, if they are watered, they will soon take root, and when they put out shoots, suffer none to grow lower than one foot and a half from the ground, to be taken off at different times; such as are to be left above, must be strong to form good heads.

From this bed they must be removed in *October*, for which purpose, prepare a nursery-bed of the same sort of earth, to be well dug and cleared of weeds, which when ready, trim the roots of your cuttings, taking away the side-branches, and planting them three feet, row from row, and one foot and a half, plant from plant. Here they are to remain two years, keeping them clear of weeds, digging between the rows every year, and observing to cut out from their heads, all such branches as cross or interlace one another, and to keep them open in the middle, that the sun and air may have free access to ripen their fruit and improve its taste.

These plants should not remain more than two years in the nursery-bed, removing them in *October*, to the borders

borders of the garden, to be planted eight feet asunder; but if on a spot allotted for the purpose, they may be planted ten feet, row from row, and seven, plant from plant, trimming their roots, rubbing off all lateral branches, and pruning their longest to ten inches; observe to execute this with a knife, and not with the garden-shears. Be careful to thin their heads every year after their fruit is taken off, which will make them excellent; and once every two years give them a good quantity of well rotted dung; some train these trees in the form of a fan, by which means they spread at two sides, are thin, when their fruit ripens well; however, on the other two sides, they must be allowed twelve feet distance to expand in; be careful not to plant your Gooseberries under the droppings of trees.

Currants may be planted against walls or low espaliers, and if on a south-east wall, they will ripen very early; if on a north, the fruit will continue good until *September*. But I would prefer their being planted on espaliers five feet high, and eight feet distance, plant from plant, in an horizontal position. They bear upon two years old wood, and snags or spurs; so that in pruning you must be careful to preserve them, keeping their branches thin, and shortened to three or four eyes above the one year's wood. They thrive best upon a light dry soil, in an open exposure. Every three years, these trees should have old rotted dung put to them, to have the earth well dug about them every year, and kept clear of weeds.



Of the Construction and Management of the different Kinds of Hot-beds, Pine-apple Stoves, the Melonry, &c.

I Shall begin with my winter framing for Asparagus, Kidney-beans, Pease, and the earliest Cucumbers on hot-beds, which I erected, by paling in a small piece of ground with old ship plank, near the dunghill, but should my practice differ from the common method, let it be remembered that I write for the northern parts of *Britain*. This inclosure I made fencible, and had here all my

my winter framing, which was better than in the garden, where, by the constant wheeling of dung, and the frequent repairs to the hot-beds, the ground must have looked very unseemly, and in a neat kitchen-garden this should be avoided.

In summer, I have had Cucumbers and Melons in the kitchen-garden; but at that season, the verdure of their beds added to the beauty of that gay season of the year.

The planks to the north were ten feet high, descending gradually to six, to the south. The extent of this ground was sixty feet broad, and one hundred feet in length. Upon the south-aspected plank-walls, I had early fruits, under glasses, by the means of hot dung applied to the back of the plank.



Mushroom-beds, Manner of constructing them, with Directions in what manner they are to be managed.

THE first beds I set to work, were for Mushrooms, to furnish the table in winter; and for these I made my beds the latter end of *August*, so that I had good Mushrooms all the winter, except prevented by very severe frosts. The beds are made in the following manner.

Dig a trench three feet wide, one foot deep, and what length you please; but if your soil be moist, let your bed be erected on the surface; then take horse-dung, shaking all the litter from it, lay it in a heap to sweat and ferment for ten or twelve days; or spread it out until little or no heat remains, as a violent heat destroys the spawn of the Mushrooms. So soon as you perceive the heat gone off, fill the trench with the dung, near one foot above the surface, on that lay ten inches of fresh light rich earth; observing to cover the sides of the dung with the same earth you gathered from the fields with the Mushroom-spawn; then take another layer of dung, lay it ten inches thick, and above that another layer of the rich light earth, of the same depth, laying the field-earth eight inches thick on the sides, observing, to lay the
the

the stratum of earth and dung alternately, four of dung, and as many of earth, narrowing the bed as it rises, so as to make it ascend gradually in the form of a wedge, whose base is the bottom of the bed; then take some of the spawn, and plant the small knobs six inches asunder, and half an inch deep into the earth on the sides. When your bed is planted, lay a covering of wheat-straw, or loose litter, to the depth of half a foot or more, to rise to twelve inches as the cold increases; this is to prevent the injuries of frost, as well as to prevent the earth from drying too fast, and from much rain getting to the beds, as an excess of any of these are prejudicial; this covering is also necessary to confine the vapour raised by fermentation, which conduces to the growth of the mushrooms.

When your bed has been made up and planted ten days, take off the litter with your hands, observing if your Mushrooms come up discoloured, appearing black or brown, and long shanked, to cut them off, and riddling a little of the fine earth over them; which when they appear again, they will come up white, round, and fit for use: this is called purging them; this first bad appearance is occasioned by too much heat in the dung, which should be avoided as much as possible.

While they are growing, it will be necessary to look them over once every day, I mean in *September*, the chief season of their growth. If you allow them to grow large, they will soon become unfit for use, rot, breed worms, and infect all the young spawn, or the off-sets: to prevent this, they must be gathered every day; by pulling them gently out of the bed, so that no part of their stems be left behind, which would canker and rot the spawn. In this operation, if any of the spawn comes up, take it off gently, planting it again, where it will soon take root; observe another bed is to be made, towards the latter end of *September*, and not later.

There are some persons who make their mushroom-beds, entirely of such dung, as I have here directed, without laying stratum of earth above the dung, but only covering the sides of the dung with the earth, as above directed, three or four inches thick. This method I approve of, and have seen plentiful crops upon such beds; but

but observe when this method is followed, to lay some dry litter or straw, to the depth of four inches between the sides of the bed, and the earth, this prevents the earth from caking or cracking into rents, which it is apt to do, from the heat and fermentation of the dung; over the straw, which is entirely to cover the bed, lay some warm litter from the stable, or dung heap; this will promote the growth of the Mushrooms; which as soon as it cools, is to be renewed.

If such beds are duly attended, they will last several months, and produce great crops; and as the Mushrooms grow for use, so will the spawn, which ought to be laid up in a warm dry place, until the season for using it. The spawn will keep four months: so that if in *May* you break up your Mushroom-beds, the spawn, or small off-sets, though no bigger than pin-heads, will keep in a warm dry place, amongst their earth, until *September*, and even until *October* or *November*.

In very severe frosts, or great rains, observe to increase the straw-coverings; and in great storms I have sometimes laid boards, such as old doors, so as to rest gently against the sides of the beds, but not to bruise the Mushrooms.

Mushroom spawn is the small off-sets, which are found about the Mushroom roots; and the smaller they are, the better, provided they are round, knobby, and white, for this is the best form of the *Champignon*, or true Mushroom. Such as come up with a brownish colour, long stalks, and flat heads, are bad, and are a sort of Fungus, which may be improved, by following my directions for purging of Mushrooms; but if they do not alter their appearance, they must be taken from the bed: by continuing to force Mushrooms, you may have them good until the months of *April* or *May*. If, in *August*, *September* or *October*, or even later in winter, the beds do not produce Mushrooms, you must not destroy them, but let them remain all winter covered with straw, and probably in the month of *March*, but most certainly in *April*, *May*, and *June*, you will have plentiful crops.

I shall mention another method of raising Mushrooms. About the end of *February*, lay old rotted dung in a trench
nine

nine inches deep, and six feet in breadth; fill up the same, and tread it well, over the dung lay some earth, taken the preceding *October*, from a pasture where Mushrooms grow plentifully, and with it cover your dung five inches thick; tread the same as hard as you can, making the bed level, or very nearly so; keep it clear from weeds, and in *May* they will begin to appear; if they come up black, lay some of the Mushroom pasture over the bed, to the thickness of half-an-inch, treading it well; this will purge the bed, and make the Mushrooms come up of a good colour. This bed will last two years; Mushrooms raised in beds are fitter for table-use, than those which are gathered in the fields.

Some, in order the better to protect their beds from rain, and severe weather, erect over them a thatched covering raised on four pillars, but of such a height as to give free admission to the air; this will answer very well, and is a great saving of covering for the beds, and perhaps is preferable in our precarious climate.



Directions for forcing Asparagus on Hot-beds.

I Shall now treat of forcing Asparagus, which, by proper management, may be had for the table from the beginning of *December*, until they grow in the natural ground. In treating of this process I shall be very particular, as I have seen it attempted in this country without any success, yet I will venture to affirm, I have had as good in winter, as any Asparagus brought to *Covent-Garden* market.

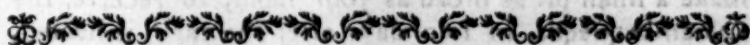
The roots which are fittest for forcing, are such as have been raised in your own garden, for they may be best depended on. These roots are to be planted out, according to the directions I shall give, when I treat of Asparagus in the natural ground; the first year after sowing, they should have a moist, rich, low ground, which will give excellent roots for hot-beds, and should be of four years standing before they are used for forcing, and such roots whose grass has never been cut, are to be used,
and

and no other. This is particularly to be attended to, if you expect large Asparagus under forcing frames.

The next thing to be provided is a good quantity of new horse-dung, to be layed up with the litter, mixing both well together to heat, ferment, and sweeten for eight or ten days. Then dig a trench one foot and a half deep, in breadth and length according to the dimensions of the frames, with which you are to cover your beds; work your dung well, and lay it level to the depth of four or five feet, pressing it even with the fork; then cover it to the depth of four inches with good rich moist mould, mixed with a fifth of whitish or yellowish loam; then raise small ridges near two inches high, upon which lay your Asparagus roots, very close to one another, filling up the spaces between the roots, with the same rich earth, covering them to the depth of two inches above the tops of the buds; but at this time you are not to lay on your framing, notwithstanding it is the practice; and the reason I object is, that the heat of the sun coming through the glass, would hurry up the grass before their roots had sufficiently struck to maintain them, which would make them small, ill-tasted, and worse coloured. However, the bed should every evening, and in frosty days, be covered with one or two mats, and if that is not sufficient to protect it, put a covering of dry wheat-straw over all, and round the sides of the bed, let some clay be laid to protect the roots of the Asparagus. In a fortnight after the bed is set to work, examine it, and if you perceive the buds of the grass above the earth, lay on two inches more; and if in ten days they push above this last covering, then lay on as much more of the same earth, when you are to lay on the frames with their glasses. It will be proper, when the roots are planted, to have two or three pieces of wood, of two feet in length, to be thrust into the dung, by which, when drawn out, you can judge of the temperature of your bed, which is not to be neglected; for if the heat declines, you must give it a lining all round of new dung, first removing some of the old, which will soon revive its heat. Before laying on the frames let two straw-ropes be made, five or six inches thick, and so long as to go round your bed, to be secured with

with wooden pins of two inches long, and so raised to the surface of the bed, as to receive the frames, which are to be covered at night with mats and straw; but in the day to be removed, to admit the sun through the glasses, for the better colouring of the grals, observing not to open the glasses in frosty weather; but when the weather is mild and open, neglect not to raise them to give air, provided the grals is two or three inches above the earth, and near ready for cutting; this will also help to give them a fine colour. In about five weeks after setting this bed to work, you may cut good grals, which observe to cut an inch or more, below the surface of the bed.

A bed of three good lights will produce 900 or 1000 good Asparagus, so that by this means you may have a succession of them, until *April*. And observe, that whatever frames you use, that they are constructed after the manner directed in the beginning of this work, that is, where the glass slides one over another, to have a good lap, and to be left open, and no bars to be used, but such as come from the rear to the front.



The Manner of raising early Cucumbers.

THE next crop I shall treat of, in the forcing way, is Cucumbers; and the early prickly Cucumber is the best to use for this purpose. I shall be very particular in my directions in making the beds, and in the management of the plants, in order to have fruit fit for use in *February*, or the beginning of *March*. I should not have given myself the trouble to attempt such early productions; but that, I had a passion to be equal in perfection to the more southern climates of this island, in which I succeeded so well, as not to be excelled by any *British* gardener.

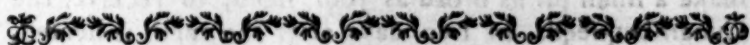
Seed of two or three years old, which has been well kept, is much better than that of the preceding year, and should the seed be soft, keep it in your breeches-pocket for a month or six weeks; by which the superabundant moisture will be better carried off, than in any other way,
and

and no other. This is particularly to be attended to, if you expect large Asparagus under forcing frames.

The next thing to be provided is a good quantity of new horse-dung, to be layed up with the litter, mixing both well together to heat, ferment, and sweeten for eight or ten days. Then dig a trench one foot and a half deep, in breadth and length according to the dimensions of the frames, with which you are to cover your beds; work your dung well, and lay it level to the depth of four or five feet, pressing it even with the fork; then cover it to the depth of four inches with good rich moist mould, mixed with a fifth of whitish or yellowish loam; then raise small ridges near two inches high, upon which lay your Asparagus roots, very close to one another, filling up the spaces between the roots, with the same rich earth, covering them to the depth of two inches above the tops of the buds; but at this time you are not to lay on your framing, notwithstanding it is the practice; and the reason I object is, that the heat of the sun coming through the glass, would hurry up the grass before their roots had sufficiently struck to maintain them, which would make them small, ill-tasted, and worse coloured. However, the bed should every evening, and in frosty days, be covered with one or two mats, and if that is not sufficient to protect it, put a covering of dry wheat-straw over all, and round the sides of the bed, let some clay be laid to protect the roots of the Asparagus. In a fortnight after the bed is set to work, examine it, and if you perceive the buds of the grass above the earth, lay on two inches more; and if in ten days they push above this last covering, then lay on as much more of the same earth, when you are to lay on the frames with their glasses. It will be proper, when the roots are planted, to have two or three pieces of wood, of two feet in length, to be thrust into the dung, by which, when drawn out, you can judge of the temperature of your bed, which is not to be neglected; for if the heat declines, you must give it a lining all round of new dung, first removing some of the old, which will soon revive its heat. Before laying on the frames let two straw-ropes be made, five or six inches thick, and so long as to go round your bed, to be secured with

with wooden pins of two inches long, and so raised to the surface of the bed, as to receive the frames, which are to be covered at night with mats and straw; but in the day to be removed, to admit the sun through the glasses, for the better colouring of the grass, observing not to open the glasses in frosty weather; but when the weather is mild and open, neglect not to raise them to give air, provided the grass is two or three inches above the earth, and near ready for cutting; this will also help to give them a fine colour. In about five weeks after setting this bed to work, you may cut good grass, which observe to cut an inch or more, below the surface of the bed.

A bed of three good lights will produce 900 or 1000 good Asparagus, so that by this means you may have a succession of them, until *April*. And observe, that whatever frames you use, that they are constructed after the manner directed in the beginning of this work, that is, where the glass slides one over another, to have a good lap, and to be left open, and no bars to be used, but such as come from the rear to the front.



The Manner of raising early Cucumbers.

THE next crop I shall treat of, in the forcing way, is Cucumbers; and the early prickly Cucumber is the best to use for this purpose. I shall be very particular in my directions in making the beds, and in the management of the plants, in order to have fruit fit for use in *February*, or the beginning of *March*. I should not have given myself the trouble to attempt such early productions; but that, I had a passion to be equal in perfection to the more southern climates of this island, in which I succeeded so well, as not to be excelled by any *British* gardener.

Seed of two or three years old, which has been well kept, is much better than that of the preceding year, and should the seed be soft, keep it in your breeches-pocket for a month or six weeks; by which the superabundant moisture will be better carried off, than in any other way,
and

and is essential to render the plants fruitful, and to ripen well. So soon as you perceive your seeds fit for sowing, that is, when they are quite dry, and the outward coat of their vessels entirely free from any clammy substance; then prepare your bed for them. This I did about the tenth of *November*, or at farthest the middle of the month, and not later; and if these plants are well attended, their vines will be stronger and more mature than those which are sown in *January*, consequently fitter to produce good and early fruit.

For this bed you are to take from the stable, a large heap of horse dung and litter, to ferment for ten or twelve days, and when the first violence of the heat is over, take one of your smallest frames, or, two large bell-glasses; lay the dung level to the depth of three feet, covering the same with the following compost; two barrows of an old Melon-bed, two of a good rich virgin-earth, and two of yellow loam and white sand, to be well mixed and incorporated the preceding year, which it must be for the Melonry as well as the Cucumber bed. In the center of the glasses or frame, make a small pit as broad as your hand, to receive the Cucumber-seeds, in two days after the earth is heated, observing to cover the whole surface of the dung three inches deep with this earth, and to cover the seeds to the depth of half an inch; in bad weather, and at night, cover the frame or glasses with mats and litter. In five or six days, if the dung is properly tempered, the plants will come up. When they appear, if the earth is dry, and they begin to spire, give them a very gentle watering from a bottle, which has been sunk in the bed, to bring the water to the same heat with the air, in which these young plants live, earthing them up almost to their seed-leaves, which will wonderfully strengthen their weak stalks. If your plants are under bells, as soon as you uncover them in the morning, replace the glasses, with dry ones, as the moisture the glass collects, from the steam of the dung, which should it fall on them, not any thing can be more injurious. If you use glass frames, let them be made the breadth and length of your hot-bed, having under them light frames covered

covered with a light-coloured bays, or very coarse flannel, to exhale the damp, and are to be replaced with dry ones in the morning, particularly in close damp weather; two sets of these frames will be necessary to preserve the plants from the vapours that rise at this season.

Your plants being now above ground, prepare another bed, with one light, in the same manner as the first, keeping it to three feet of dung, that it may retain the heat, until the plants are fit to be planted in baskets. Cover this bed with the compost as before directed, to the depth of five or six inches, then set on your frame, and when you perceive that the first violent heat is over, prick in your plants at three inches distance, plant from plant, setting them up to their seed-leaves, and to be covered from the rays of the sun, until you perceive them growing, which they will do in three days time.

When you give them water, it must be but a little at a time, and such as has been kept in a bottle under the frame. It will be also necessary in mild weather to give them air, which you may do by resting the lower part of the frame on a brick set edge-ways, placing a matt before the opening, that the air may gently transpire to them thro' its openings, remembering to cover the glass with matts and straw at night, and to use the woollen shutters at night also, and in the day in cold damp weather. If you perceive the heat in your bed to be too violent, thrust in three or four sticks to the depth of two feet into the sides of the bed, to remain for a day, leaving the holes open, until you perceive the heat abate; but if the warmth declines too much, make up the holes with fresh dung and litter to recover the heat; and should it at any time so far decline, as not to be recovered by this expedient, the bed must be lined; that is, to remove some of the dung on the outside to be replaced with fresh, which will effectually recover it.

In about three weeks the plants will begin to put out their rough leaves, when another bed is to be made as broad as the former, and so long as to receive two large lights; when you must provide some loose wrought ozier baskets eight inches diameter, and six inches deep, with two small handles to each, to be set in the bed to

the depth of three inches in the dung, and within an inch or two of one another, filling them almost to the brim with the compost, and the spaces between the baskets with good rich mould. In four or five days, the earth in the baskets will be ready to receive the plants, to the number of six in each, to be planted about the hour of three o'clock in the afternoon; observing to water them the preceding day, about eight o'clock in the morning, in order, that the earth about their roots may be fixed to them; this will so protect their fibres, that their growth will not suffer by the frequent transplanting that is necessary; a scooped trowell will be the best thing to move them with; and when the sun is off the bed, fix the mould to them, raising it to their seed-leaves, gently watering them, using your matts and woollen shutters, and observing to exclude the sun's rays for a week after planting: you must likewise be careful to cover your dung, that projects beyond the frame with earth, to confine the steam, as not any thing can be more injurious to your cucumbers; in the day-time raise the glasses to give them air. In about three weeks the plants will shew their male blossoms, and begin to set fruit: delay not then to make a fresh hot-bed of three lights, with great care, turning the dung well, leaving no clods, and mixing the dung and litter with some fine coal-ashes, which is of use to retain the heat long and moderate in the beds, and as soon as it is in good temper to receive the baskets, draw out three of the weakest plants, leaving three of the most forward, then set the baskets under the centre of each light, and in two days let them be filled with new earth, covering the glass at night with matts, and using the woollen shutters as before; by this renewal of heat, the fruit will swell in three weeks to be fit for use. At this time, do not neglect every opportunity to give them air and good watering, whenever they require it. The runners may be suffered to shoot at pleasure, and never offer to pinch or top them; with this management, I have had fine large cucumbers for slicing, by the end of *March*.

It has been observed, that, notwithstanding all the care and heat that can be given these early plants, they will not produce fruit of a tolerable size, before they drop off;

off; to remedy this I tried the following experiment with great success: let there be in the baskets some plants to spare, and as soon as you perceive the fruit set, the flower on its top opening, and that the fruit does not swell fast, take the male blossom, clip off the top until you come to its eye, which set into the funnel of the female flower, so that the eye of the male and the eye of the female flowers may be close joined, covering them with some bals matt, so as to exclude all air; then cut off all other vines from the plant, and pinch that which is to stand to two joints above the fruit, and in two days you will perceive the fruit to swell fast, when the piece of matt is to be taken off, still preserving a regularity in the heat of the bed.

When the season comes in warm, and your plants are slow in putting forth fruit, use this expedient, pinching the vine above the fruit, and taking off all runners, except that upon which you have the fruit.

I have also raised early Melons, but did not begin this work until the end of *January*, or in the first ten days of *February*. I had likewise hot-beds for early Peas and Kidney-beans, which, in mild winters, were fit for the table in *March*, or the beginning of *April*.



Directions for raising Pease and Kidney-Beans upon Hot-Beds.

THE Pease which I use for this purpose, are Lead-man's prolifick dwarf, and the dwarf Sugar pea. They are to be sown near a well exposed south aspect wall, about the twenty-fourth of *September*; setting the seeds very near the wall, as soon as you perceive them coming up, cover them over again to the depth of an inch; in frost they must be covered with pease haulm, wheat straw, fern, or whatever will keep out this enemy. About the latter end of *January*, the Pease, (if the winter has been mild) will be some inches above ground, when it will be proper to make a hot-bed for them, in the manner as has been directed for Cucumbers, except that in depth, the dung is to be only two feet.

When the dung is fit for use, make it up into a bed four feet broad, and as long as you have framing; level the same well, covering it with ten inches of light virgin-earth; then lay on your glass frames to be raised in the day time to carry off the steam; when the bed is in a moderate warmth, lift the pease with a scooped trowel, so as to have a ball of earth to their roots, then plant them in the bed fourteen inches row from row, and four plant from plant. Give them at this time a moderate watering, but be very sparing of it afterwards: Observing to shade them from eleven o'clock, until the sun is near off, giving them air in mild weather, and covering the dung with earth, which surrounds the outside of the frame; to keep down its rancid steam so very prejudicial to hot beds. The frames for Pease should be two feet high in the back, sloping to fifteen inches in front.

I raised the dwarf *Battersea* and *Canterbury* Kidney-beans in the same manner, with this difference, that I raised the beans in *December* or *January*, on a very moderate hot-bed, fixing small sticks by them for their tendrils to climb upon, which I pinched as soon as I perceived them to run too much to vine, and not blossom or fruit in proportion to their strength. In moderate weather, they must have abundance of air given them, otherwise they will die away. These beans I have had for the table by the 20th of *March*.

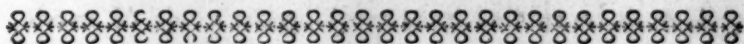


Directions for forcing Fruit on Timber-Walls, viz. May-Duke Cherries, Gooseberries, Masculine Apricots, Red Nutmeg-Peaches, and Strawberries.

HAVING gone through the process of framing and hot-bed work, I shall proceed to direct the management of such fruit, as I planted upon paled walls, which I forced with well tempered dung, laid to the rear of these wooden walls five feet thick at bottom, sloping to two and a half at the top, and laid close to the wall with a fork, but not pressed down; to be covered with thatch, for the better preserving of the heat. This I did

did about the end of *February*, when I covered my trees in front with glass frames, which are to resemble those laid to hot walls. As soon as I perceived them beginning to bud well, I gave them air, and considerably more than is usual on flued walls, which is necessary to carry off the steam of the dung, so very prejudicial to forced crops. The dung first laid down will continue sufficiently warm for five weeks, when it must be replaced, to keep up the heat until the fruits are near ripe, or at their full growth.

Upon the front borders you may have Strawberries, and some monthly Roses: the Strawberries should be planted the first week in *August*, keeping them free from runners, that they may turn stocky, and become fit for bearing before you apply the dung; these frames should have a door at each end to admit the air to the plants and trees, when the glasses cannot be raised, especially when the trees are in blossom; I have also planted Strawberries in pots and baskets, and placed them on hot-beds until they ripened, as directed for early cucumbers. Observe that your trees for these timber walls, be pruned two months at least before you lay in your dung, according to the directions laid down in treating of flued walls.



Of the Culture of Musk-Melons.

OF the variety of Melon seeds, which are imported is that of the *Persian* Melon, a fruit far inferior to the *Cantaleupe*, the *Genoa*, or the *Languedoc*; the *Cantaleupe* undoubtedly is preferable to any other, and so much prized for its excellency, that in *Italy* it is called *Melone degli Santi*, or *Melon of the Saints*. Gardeners should be very careful to preserve the best sorts of Melons, keeping their seeds separately, noting the year they were saved; which is particularly necessary. The best are to be had from *Languedoc*, by the *Bourdeaux* Merchants. This seed should be four years old before it is sown; for by that time all the superabundant Fluid, with which they are filled, will be evaporated; and one plant will give more fruit, than you can get from six, whose

seeds have been sowed but one, or even two years. The method of making the hot-beds, and the manner of raising them from seed, being much the same with that used for Cucumbers, I need not repeat it here. Before the latter end of *February*, I sowed my Melon-crop, as the seed-beds will then work well; and as the sun begins to have a kindly influence, you can give air in mild weather to the young plants, which is of great use to them. The frames in which these plants are raised may be about two feet square, and when the Melon-plants are fifteen days old, it will be proper to make another bed of the same dimensions; and as soon as it is in a good temper, (which you may be satisfied of, by thrusting your finger into the earth with which the bed is covered) prick them out at three inches distance, plant from plant, observing, as they spire, to add earth to their long shanks, which will strengthen them much, and make them soon put out their rough leaf. The best compost for Melons is thus made: take two loads of well-rotted old cows dung, two of fresh virgin-earth, and two of yellow fat marle, mix all together, and let them lie one year at least before you use them; in winter let it be spread to receive the benefit of the frost and atmosphere; which, when to be used, must be riddled fine, breaking the clods of marle, as they are apt to cake. Observe, when you transplant Melons, to shade them from the sun, until you perceive they have struck root, giving them moderate waterings; and in bright sun-shine, cover the glasses with matts, giving them air in the day only. The best time to give them water, is about seven in the morning, from bottles which stand in the frames one day before it is used, that the water may be of the same temperature with the air in the beds, which the plants feed upon. In this bed they may continue until they shew one, or at most two leaves, but no longer. When the following directions must be carefully attended to, to have high-flavoured, large and well-tasted Melons, especially the *Cantaleupe* sort, without which, they can never be obtained in this country. Experience of many years taught me this, and I can safely recommend it, as the only method to have those fruits in perfection.

fection. As soon as you are provided with four frames and glasses, of about one foot square; lay out a piece of ground in your Melonry of twelve feet square, well exposed to the morning and noon sun; at the corners of this bed, you are to set your small frames, which as soon as the Melon-plants have filled, they are to be taken away, to give place to a double frame of twelve feet square, to have glasses in front and rear, shelving like the roof of an house, but every other way constructed like the common frames.

When the four beds are made up, and covered with the small frames, and in good temper to receive the plants, make a hill in the middle of each, in the form of a flat cone, of eighteen inches high, of the compost directed; upon which plant two young plants, and no more, (if of the *Cantaleupe* Melon, one plant will do, as it is not to be removed) observing to shade, water, and cover them at night, as has been before directed. And here I must give a very necessary precaution to Melon-men: When you have made the four small beds, cover them with the frames for two or three days, and as soon as the excessive heat of the dung is over, lay on your compost, otherwise it will be rendered useless. Be careful to give them air in mild weather, and to wipe off the steam from the glasses in the morning. In two weeks after transplanting, they will shew their third joint, the top of which you must pinch off with your fingers, to provoke the plants to send out lateral branches, which we call vines or runners; and if they have but two vines, pinch their tops; but if you perceive a plant too viny, take off two or more of the smallest vines to the very stalk of the plant; three weeks after this, you will observe the vines will have grown to the foot of the hills, on which the Melons were planted, at which time you are to lay your vines regular, making ready your double frames for use; and as your small beds were made above the surface that divides the small frames, take away the earth in the spaces between these frames, and fill all with new dung to the very sides of the small frames, taking care that this new dung, has been well managed and sweated as that for hot-bed use; then, after it has been well levelled, and

made as high as the dung in the small beds, cover this new dung with the prescribed compost earth, eighteen inches deep; on this depth of earth depends very much the success of your crops, as such as have no more than six, eight, or ten inches of soil to grow in, have decayed and died away. In a temperate evening, having taken off your small frames, and ordered the vines, laying two or three inches of fresh compost earth under them, pulling out all weeds, taking out all useless leaves, or small useless runners, and giving them a gentle watering at the extremities of the vines, but not near the stems of the plants, then lay your new double frames over them; next morning wipe the glasses clean, raise them up if it is a good day, but shade the plants for one whole week after, that their leaves may not flag by this addition of heat, and alteration of air, until they are used to it for some days. To this method of managing Melons, in giving them a new heat, I was obliged to have recourse, particularly when the plants begin to shew male, or what some erroneously call false blossoms, which you must not take away, for, from experience, it is certain, that those flowers are the male blossoms, which impregnate the female, and which in Melons and Cucumbers always grow upon one end of the young fruit: when you observe the young fruit and their blossoms appearing, and that many of them turn yellow, or fall off, then is the precise time to assist nature in this cold climate of ours, without which you cannot expect to have good Melons. If you observe any of the beds decline in heat, remove some of the old dung all round the bed, to be replaced with some fresh dung and litter, to recover the heat, and bring your plants forward.

That I may be understood when I write of double frames, I shall observe, that they rise in the ridge two feet, sloping to eight inches, and in every other respect are made like the common frames, and so large as to contain the whole space of ground within them whereon stood the four small frames I have just mentioned, and that in such a manner, as that the plants which were in them, will be in the centre of each of these glasses: it is called double, because it has glasses both to the south
and

and north, whereby the plants have double sun, double air, and double the heat by reflection, than what they had in your common single frames.

Your fruit, by the addition of heat and air, will soon set beyond the danger of miscarrying; but there are some necessary directions to be observed at this critical period, which if neglected, may suffer these plants to set their fruit too freely, particularly the *Cantaloupe* kind. I have advised pinching the ends of the plants, when they have got a third good joint, in order to obtain vines or runners; and when these runners have three or four joints, to pinch off their tops to force out more runners: but if the vines push out others upon this last pinching, pinch no more, for they will now shew fruit, at which time they ought carefully to be looked to. Make choice of one good, or at most two fruits on each runner, situated nearest the stem of the plant, and such as have large pedicles or foot stalks; taking away all the others, that appear upon the runner, pinching off the end of the runner at the third joint above the fruit; this will stop the sap in the runner, and make the fruit set immediately, beyond the hazard of going off, as is frequently the case, when the vines are over-charged with fruit. I never allowed these plants to have more than six or eight fruit upon one plant. This pinching of the main fruit-runners, will encourage good working plants (as the gardeners call them) to send out small runners, which must be pinched off when they appear, with their young fruit: this work must be carefully done, and the vines looked over, until the fruit left on the plants turn so large, as to draw all the sap of the plants to them. Lay tiles or blue scallie slates below your fruit; for if you suffer them to lie on the earth, they will rot; and as they swell, turn them to the sun, to ripen equally. Some find fault for directing them, to forbear pruning the vines of Melons; but experience has taught me, that such unmerciful knife-management, is good for nothing, but to bring forward a confusion of vines, so that the plants have been destroyed. It is sufficiently early to use this knife-discipline, when your fruit is past danger of going off, and even then to use it with caution.

There

There is a method to set Melons, which are not apt to keep their fruit, which succeeds better than any I know of, especially with the early fruit, *viz.* Whenever you perceive fruit appearing, and that it opens its female blossoms (which are upon the fruit) and that it does not swell to your wish, take a male blossom, and cutting off its petals above the eye, thrust it into the female blossom, close to the fruit, and tie both together instantly, that no air may get in to prevent their uniting; then pinch the top of the vine whereon the fruit is, two joints above the fruit, and cut off the runners from that vine, but take off no more vines from the plant, unless it has more than three or four; if you keep up the heat, your fruit will visibly swell in three days, when you must cut off the bass-tying. This is a method for setting Melons, which never failed. Observe to fix the eye of the male flower, close to the female, when you set it in.

If the vines of your Melon plants, over-run the length and breadth of your large frames, lift up the frames, and let them rest upon bricks four inches high, suffering the vines to run out at pleasure, taking care always to peg them down with forked sticks, to prevent their being broke with wind. Observe that what water you now give them, be at their extremities, and not near the stems of the plants; which they should never have at this season, except in very hot and dry weather. If you are to eat your Melons at home, let them be high in flavour, and the stalk seeming ready to part from the fruit, and to be cut in the morning, with no more than two inches of vine. If the fruit is to be sent some distance, let it be cut three days before it is ripe, cutting a foot of vine with it. By this method of cultivating Melons, I have had great plenty, and very good fruit. Melons under bells or oiled paper, will never do in Scotland.

My first crop of Melons was over by the middle of July; when the vines were still fresh, healthy, and preparing to set out new runners, flowers, and fruit, I then set about to try an experiment to obtain a second good crop, in which I succeeded every year. For this purpose I took up all the vines, light by light, laid three inches of my
new

new compost upon their roots, and over the bed; and after taking off their rotted leaves, I laid them down again in the same order, giving them a good watering or two; in warm days raised the glasses, and in cold nights covered them with matts; and by the end of *August* I had two pair of good Melons out of danger in each light; these, in the month of *September*, and even until the middle of *October*, swelled well, and many of them were near as large as the first; but the sun failed in giving them ripeness and flavour. To remedy this, I cut the fruit about the fifteenth of *October*, with three feet of vine to them, and twisting it, I put them into pots filled with good mould, plunging them into the tan-bed in the stove, which was kept only to a moderate heat, here the vines soon took root, and the Melons ripened to great perfection, in taste, flavour, and juice, until the middle of *December*. I laid the Melon fruit, in the tan-bed, upon bricks to keep them dry; and when this second crop was forming, I did not prune much, but was careful, that, at this season, the fruit should not be too much encumbered with leaves, gently watering them until I found the fruit was of a considerable size; observing to cover the glasses well at night, which effectually preserved the fruit from the frosts, that in *September* and *October*, happen in this country.

I have the seed of a Melon, which I sow the first week in *April*; it is very curious, as it never sets its fruit until three months after it has been sown, notwithstanding all the necessary heat and care that is applied to it; and then it swells, becomes very large, and continues green and very hard in the skin, and seems to part with its pedicle about the middle of *October*, still continuing green and hard. I had it from Monsieur *Rathgeb*, the Imperial Resident at *London*, who informed me that it was the Melon they used in *Italy* in winter. When they part from their pedicle, they are hung up in a cool room free from frost, one by one in nets, and ten days before they are used, they are brought into the kitchen, or a room where a good fire is kept; there they ripen during the whole winter; when the skin becomes thin, turns to a lemon yellow, and emits a very poignant odour,

odour, and tastes extremely pleasant. I made this experiment upon six of them, and they eat vastly well, and their seed came up the year following in great plenty, and fruited well.



Directions for raising Cucumbers under Bell-Glasses

I Never used frames to Cucumbers, except the earliest sorts, for these continued to give me fruit until the plants fruited, which I raised under bell or hand-glasses, in the following manner.

About the 15th or 20th of *April*, I dug holes in the Melonry, in straight lines, four feet square, one foot deep below the surface of the earth, and six feet from one another; these holes I filled with horse-dung, prepared in the same manner as has been directed for hot-beds, working it well, and laying one foot more of dung above the surface of the earth; I then covered them with the Melon compost, to the depth of twelve inches, and upon every one of these holes, I put two bell glasses: in three or four days, when I perceived the heat in good temper for sowing, I put under every glass six or seven seeds, which in a few days appeared above ground. I took care to cover their stalks, with the compost-earth as they spired, shading the glasses in the evenings with mats, and giving them as much water as was requisite; in a few weeks the plants grew strong, and were preparing to run; which, when I perceived, I took out three of the weakest, leaving four under the bells; but before I drew them, I filled up the spaces between the holes with good hot dung, and working it well, and covering it over with twelve inches of good compost; there I planted my Cucumbers which I drew out, taking care to water and shade them, and matt them at night, until I perceived they were again growing. So soon as the plants under the bells, and these just transplanted, put out runners, I pegged them down, and as their runners grew longer, I secured them, raising the bells, to allow the plants to run from under them; and
when

when they had run so far as to go off the ridge, I laid new compost to the sides of it, so as to increase it in length one foot or more, that the vines might run, and their roots have full liberty. By these means I had great crops: for, it is observable, that, as far as the vines of Cucumbers and Melons run above ground, so far do their roots run below; and if their roots are cramped for want of good earth, they stunt, and come to nothing; whereas, when you feed their roots with good fresh rich earth to run into, you will always have fine, and plentiful crops, both for slicing and pickling. There are some persons who sow their Cucumbers amongst their Colliflower-plants, sometimes in basons, and others do it upon hills of earth made up with lime. This method will do in good seasons, in well sheltered sandy soils, provided they have the morning and forenoon sun; but the method I have prescribed, in regard to bells, is the surest and best, to have good Cucumbers.



A late Writer (Mr. Adam Taylor) having lately laid his Process of raising Melons before the Public, we shall introduce it here, beginning with his Preparation of the Seed, having already pointed out such Fruits as best answer our Climates.

Mr. Adam Taylor's Directions for raising of Melons.

WHEN the seed is taken from the fruit, it should be laid in the sun and well dried; after which it should be put into a phial, and close corked, and then set in a place which is exposed to the sun. Thus the watery part will be soon dried up, and they will be as good as if they had been kept elsewhere in paper for two or three years. Many persons take another, and not improper method, drying the watery parts from the seeds, by hanging them near a fire for three or four weeks. Others carry them in their pockets for some time before they sow them. Either of these ways will do tolerably well,

well, and answer the intent of making new seed as fit for sowing as the old. The seeds, having the watery part thus dried up, will produce more fruit than otherwise they would; and not subject to that luxuriance, which is the usual consequence of undried seeds.

Our next care must be, to give directions for providing a proper dung-bed, wherein the seeds are to be deposited for the first crop.

In the month of *January*, let the gardener provide himself with a quantity of new horse-dung, proportioned to the number of plants which he intends to raise. This dung should be thrown up in a heap.

This direction is given upon a supposition that old horse-dung, which is much preferable, is not to be had. And this new dung will be the better for having a large quantity of straw or litter amongst it. A load of this is sufficient for a hot-bed with one light. It should be suffered to lie for a week, and come to its proper heat, before you make your bed.

The dung being now in order, lay your light upon the plain surface of the ground, (for there must be no trench) and draw a line all round, close to the outside of the frame. Then mark another line at the distance of eight inches every way from the former. This last is to be the exact compass of your dung-bed. Let the longest part of the litter be spread first upon the ground; still observe this rule as you rise, till you have scarce any thing but clean dung left for the top. Thus raise it to the height of about four feet six inches, that, when settled, it may be nearly three feet thick. It will then be of course eight inches wider than the outside of the frame. Let the top of the bed on the inside of the frame be covered with cow-dung about two inches thick. This will preserve the mould from being burned by the violent heat of the dung, which often happens, and when it does, it proves very destructive to the plants.

When the bed is thus far prepared, put on the frame, and cover it with the lights. It may be useful to thrust a stick into it, which, being now and then pulled out, will shew the condition of the bed. However, in a week's time, or less, the vehemence
of

of the heat will be pretty well over; when the bed must be covered with fresh light earth, taking care that it be not too wet when it is laid on. Let this be disposed smooth and even all over the top of the bed, and about six inches thick. Give it a little air now and then, to let off the steam.

When the earth is become warm by the heat of the bed, then is the time to put in your seeds, covering them about half an inch deep.

When the seeds are up, and the leaf is fully expanded, and the rough leaf begins to make its appearance, which will be in about seven or eight days after sowing, you should then be provided with another quantity of dung, in order to make a second bed for the reception of these plants. This dung should be well mixed together, and thrown up in a heap, as the former, and suffered to lie so for six or seven days, till the rank heat of it shall have passed off. If it should be dry, and full of long litter, throw a few pails of water over it; which will cause it to ferment, and keep it from burning. This second bed must be made of the same thickness as the first, and of a length proportioned to the number of plants which it is intended to contain. The surface of it must be covered over with cow-dung, as was before directed for the seed-bed. Then put on the frame and lights; and in two days after the bed is made, cover it with old tan, or light earth, about eight inches thick.

On the next day the bed will be fit for the reception of the plants, if the dung has been properly worked up.

When the plants in the seed-bed have one small rough leaf, it will then be proper to take them out with care, and place them in pots about seven inches wide and five inches deep, filled with good rich earth, placing two plants in each pot, after having secured the holes at the bottom. Then plunge them up to the rim in the new bed. But observe, if the weather should be so clear, that the sun shine warm, then they must be shaded till they have taken fresh root. And, if the mould should appear dry, it will be proper to give them a little water, but sparingly at this season. It will be also necessary to cover them with mats or straw, that they may not

not be chilled at nights, and to give them air in proportion to the heat of the bed in the day-time, when the weather will admit of it, that the steam may pass off, and the plants gather strength. For the natural consequence of too close confinement is, that the plants will be drawn up weak, and the leaves turn yellow.

If the heat of this last bed should abate, and the weather prove severe, a fresh lining of horse-dung must be added. But be careful to prevent the steam of it from getting into the bed, which would be extremely hurtful to the plants. This is to be done, by laying a small quantity of earth upon the margin of the bed on the outside of the frame, by which the steam will be restrained from passing under the bottom of it. This method of keeping up the heat by lining the bed occasionally, is much better than to be frequently moving the plants into new beds. And if some hay or straw be laid closely and neatly round, and almost even with the top of the frame, for the purpose of shooting off the wet, it will be found to be no inconsiderable improvement.

As soon as the plants have fully expanded their two first rough leaves, and are forming the third, it will be proper to cut off the extreme part with a sharp knife. This is called stopping them. Then lay some dry mould, by way of plaister, on the wounded part, to heal it. The center of the plants being thus cut off, they will soon put forth runners. When these begin to appear, you should be provided with a quantity of dung proportioned to the number of lights you intend to work, allowing fifteen barrows of dung to each light.

In shufing your dung on this occasion, your care is requisite, that it be neither too long nor too short. The first will heat too violently, and afterwards lose its heat too soon; and the last will be apt to settle too close, by which the fermentation will be soon stopped. The useful therefore lays between both, and a medium must be observed. Be sure to mix it well together in a heap, as before directed. And when you see that the plants in the nursery frame have produced runners four or five inches long, then make your third bed; in which they are to be planted to produce their fruit. If you observe
any

any small weak leaves near the stem, or any very weak runners, take them away.

If the plants are managed according to the directions here given, they will be fit to be planted out for fruiting in about six weeks after sowing. But in your proceeding, you must with forecast make the necessary allowance for the time of the dung's working, and the beds coming to a proper heat; that the plants may not, when they are arrived at this pitch, wait for the bed. If the soil where you make your bed be very dry, you may now dig a trench about twelve or fourteen inches deep, answering to the length and breadth of your frame; otherwise it is always best to make it on the plain surface of the ground. You are to make this bed two feet wider than the frame, mixing the long and short dung well together, that it may heat regularly. Let the back part be raised half a foot higher than the front. This will give the glass a greater slope to the sun, and the plants will receive the benefit of it. This bed must also be covered with cow-dung, as was directed for the others, and afterwards with mould, about three inches thick, all over the surface.

Three days after the bed is made, you are to put about three pecks of good earth under the centre of each light, raising it into a sort of an hillock, with a descent slope around. Then put on the lights, tilting each light with a notched trick, that the steam of the bed may pass off. In about two days the earth will be entirely warm. Then carefully turn the plants out of the pots, having first watered them, that the earth may not fall from the roots, and put two plants on each hillock; without disturbing the ball of earth which is about their roots. If the mould should appear dry, give them a little water; but not till you have taken off the chill from it, by setting it on the dung a few hours before it is wanted for use. Neither let it be too warm: For that would prove as hurtful to the plants as the contrary quality. If the sun should shine out, shade them till they have taken fresh root. But if the weather prove cold and foggy while the plants are young, tilt up the lights according to the heat of the bed; and hang a mat gently over that part of the light which is

I

tilted,

tilted, that the plants may at the same time receive a moderate share of air, and the steam pass off without injury. For if the cold air is too freely admitted at this season, it will frequently destroy the plants: And if the lights are kept too close and the steam confined, the danger will be equal. For the plants will imbibe an infected air, and soon shew their sickness by the yellowness of their appearance.

As the runners advance, observe to dispose them with regularity, that they may not cross or be entangled one with another. And as they proceed in length, encourage the roots by adding some fresh earth around the hillock on which the plants are placed. But in doing this, be very careful not to bruise the runners, or bury any of their leaves. Let the gardener observe particularly, not to lay this fresh earth so high as the top or summit of the hillock or eminence before mentioned, by two inches or thereabout, that the main stem may be kept dry; otherwise being watered, would soak to this principal part, and cause it to rot. And let it be understood, that this mould is not to be laid on all at once, but at different times, as occasion may require. This will greatly encourage the fibres, and promote the growth of the plants, and will sufficiently recompense the gardener for his trouble, who is desirous of having his Melons excellent and of rich flavour.

When the young fruits begin to appear upon the runners, forbear to water them till they are grown to the size of a walnut, unless the mould should be very dry indeed; and then let them have it but sparingly. For a little too much water at this time when the fruit is setting, will cause the branches to shoot with luxuriance, and the young Melons will be apt to drop off. For the destruction of the fruit is generally owing to the exuberant quantity of sap which the branches contain.

At the first appearance of the young fruit, you will perceive abundance of male blossoms. I have seen many unexperienced persons pick off these, to the manifest prejudice of the crop. For these false blossoms (as they are too commonly called) are absolutely necessary for the impregnation of the ovary of the fruitful plants.

And

And when the female is deprived of the farina of the male blossoms, which is as necessary to the generation of plants, as the seed of animals is to the propagation of their respective species, your expectation must fail of course.

When the blossoms are all over, and the fruit advances in magnitude, lay a piece of glass or tyle under each Melon, to keep it from the earth. And if the weather should prove mild give them a good watering. This will cause them to swell apace. And fresh air should be admitted at all opportunities when the weather is fine.

Should you find the heat of the bed to abate and decline, add a fresh lining of new dung, as before directed. And it may be requisite to repeat this two or three times. For the fruit will be surprisngly forwarded in a little time by keeping up a proper warmth. And when it is about three parts grown, turn it every four or five days, that each part may receive equally the benefit of the sun. And remember, that when it is full grown, it must not be watered; for that would considerably retard its ripening, and in a great measure rob it of the richness of its flavour.

Many eminent gardeners have a custom (and by no means a bad one) of placing the fruit when it is full grown upon bricks. This has some good effects: For it raises them above the leaves, whereby they are fully exposed to the sun and air, and the stems are secured from rotting.

When the Melon begins to turn yellow, and to crack at the part which is affixed to the stalk, and to diffuse a fine smell, it is then ripe and fit for cutting. For if it be suffered to remain on the vine a day or two after these appearances, it will lose much of its flavour. Let it be cut in the morning before the sun shines upon it, and kept in a cool place, till it is wanted for the Table.

This is the whole management for your first crops of Melons, from the sowing of the seed to the maturity of the fruit. And your observance of the rules laid down for it, will sufficiently compensate your attention to them. But it is necessary that I should give some further directions for raising the late crops.

The place where these plants are to be raised, should be well exposed to the sun, and enclosed with reed hedges, mud walls or pales, to break off the violence of the wind. And the frames wherein the plants are to produce their fruit, should be larger than those which are made use of for the raising of Cucumbers. The size of a two-light Melon-frame, should be seven feet and an half long, and four feet and an half wide; and a three-light one in proportion. The best compost for your plant is the following, viz. Take one load of loamy earth from under the turf of a good pasture, half that quantity of good old cow-dung, and three wheel-barrows full of rotten dung from the old Cucumber or Melon beds. Mix these well together by stirring, and then throw the whole up in a ridge to receive the air. This should be prepared three or four months before it is used. The large clods should be well broken, but it must not be screened or sifted. If Cucumbers are to be raised in the same ground, it will be necessary to make a division with a reed hedge, mud wall, &c. running north and south: For they are apt to degenerate, when raised together. Nor, for either purpose, should you tread or beat the beds close; but let them settle of themselves. For this will prolong the fermentation of them, and they will be the less subject to burn. I have found by experience, that the mixing of coal ashes with the dung will prevent the free penetration of the air, and frequently ruin the best crops. The frequent stopping of the Runners will also occasion a great number of weak shoots, a strange confusion of Vine, and the small fruit will turn yellow and drop off. They should not be stopped, or cut, till the fruit is as big as an egg. Then stop them two joints beyond the fruit.

For the convenience of watering the plants, without wetting the leaves or fruit, place a garden-pot, with a small hole at the bottom, among the leaves, and at some distance from the principal stem. Put a little hay or grass at the bottom of it, that the water may not pass through too freely to wash the mould from the roots: Remove the pot discretionally to any part of the bed which may require water. For this is abundantly better

ter than making a drill, as is the common practice, around the inside of the bed.

Some persons raise their principal crop of Melons under bell or hand-glasses, and oiled paper: For which the following particular directions are necessary.

About the third or fourth of *March*, prepare the dung as before directed for the plants raised under lights. Sow your seed about the twelfth of the same month. And when they have one small rough leaf, plunge them in small pots in a fresh bed; where they are to remain till the beginning of *April*. Then the dung must be got in readiness by mixing and preparing it, as before directed, in a heap to ferment; and the ground must be got ready, where the ridges are to be made, by straining a line, and digging a trench three feet wide and six inches deep, and leaving a space of seven feet between each trench. The length must of course be proportioned to the number of glasses, which you intend to have in each row; which must be full six feet apart. Then wheel your dung into the trench, allowing eight barrows of dung to each hole.

Your dung-bed being made straight on the sides and level on the top, it must be covered with cow-dung two inches thick: Then spread two inches of good mould all over the bed. Now put the glasses upon the proper spots, where the plants are to be placed, that they may draw up the heat. The next day take about a bushel of earth at a time from the compost, (made as before directed for the early crops) and lay it on those spots fourteen inches thick. Into this the plants are to be removed about three days afterwards.

In about three days, therefore, water the plants in the pots, that the earth may cling to the roots. Then turn them out gently and plant them under the glasses, where they are to remain for fruiting. Be sure to keep them watered, and shaded from the sun, till they have taken fresh root. After this, care must be taken to give them fresh air in the heat of the day. This will prevent the leaves from being scorched. And, as the plants advance in growth, the bed must be earthed up with the mould between the ridges, mixed with some of the com-

post, till it is almost as high as the little hills whereon the plants grow.

In the beginning of *May*, if the heat of the ridges or beds abate, and the nights continue cold, take the mould from the sides of the beds as deep as the bottom of the dung, then add a fresh lining of new horse-dung, and cover it again with the mould taken from the sides.

As the plants encrease in growth so as to push against the sides of the glass, get some reed or moss, and lay it all over the surface of the bed, for the vines to run upon, and to preserve the earth from drying too fast.

When the plants are grown so large that they cannot be contained under the bell or hand-glasses, they should then be covered with paper frames made full five feet and an half wide. And on taking off the glasses, see that the branches lay regularly, and without being entangled with each other, before you put on the frames.

When the beds are thus covered with the oiled paper frames, the paths between them should be filled up with mould as high as the beds.

For the convenience of watering these plants, a deep drill should be drawn with a hoe, close to the outside of the frames; and when they require water, pour it into these drills, that the fibres may have the benefit of it, without your wetting the leaves or branches.

Cover them in cold nights, heavy rains, and blustering winds; that the frames may not be blown off, or the branches displaced. But when the weather is mild, moderate air will be very serviceable to them, and then the frames are to be tilted with a forked stick.

With respect to other articles, these differ not from those which are raised under lights. It would therefore be superfluous, to trouble the reader with a repetition of them.

The Culture and Management of Tuberofes.

I SHALL now treat of the culture of Tuberofes, which I own is against the rule I laid down at the beginning of this work, which was to write of nothing but fruits, or of kitchen-garden plants; but as these roots are planted in hot beds made of dung, and not in the stove-work, I judged it would be very acceptable to have some directions given for their culture.

These roots are annually brought from *Genoa*. I made my plantations of Tuberofes at two seasons, *viz.* the first in *April*, and the other in *May*. As soon as my roots arrived, I prepared a hot-bed in the same manner as for Cucumbers, covering it with a frame two feet and an half deep at the back, sloping to one foot in front, and covered the dung with eight inches of good rich light earth, the same as I used for hyacinths; taking from the roots all their old skins and withered fibres, and all their off-sets, I planted them in this earth two roots very near one another, in such a manner, as that the top of the bulbs were but just covered; for if they are planted deeper, they often fail. Between these roots planted by pairs, I left a space of eight inches, that when they were fit to be potted, they might be lifted with a good ball of earth to each pair, as I potted each pair in a two-penny pot. I do not approve of planting them into pots, to be set in the hot-bed, as the sides of the pot cramp and stunt their fibres, whereby they do not flower so well, as when they are planted in the earth, where their fibres run at pleasure, and form well, which makes them blossom strong.

As soon as they made their appearance, I gave them a little water; when they shewed their flower stems, I gave it in greater plenty, and took care not to force them so much, as to hurry up their flower stalks, so as to grow too slender. I gave them air in mild weather by taking off the glasses, which I laid on again at night, and in very bad weather. When their flower stems were a foot and a half high, I gently tied them to slender sticks, to prevent their being broke, and as soon as they touched the glasses, I took them off, fixing hoops in their

their place, to be covered with matts. As soon as I perceived the bells of the flower well seen; and that they had opened the tunicle or thin skin which covers them, I watered the plants and earth, when I lifted two roots together, planting them with a clump of earth into two penny pots filled with the same sort of earth off the bed, settling the earth well about the roots: when some were placed in the green-house, and others in the bed-chamber, which they agreeably perfumed; and when their blossoms expanded, I kept their pots moist for their more perfectly flowering, taking every opportunity of giving them sun.

Of late years the double flowering *Tuberose* has been raised from the seed, by Monsieur *Le Cour*, at *Leyden*: to this gentleman the curious are much indebted for his many improvements in gardening, on exoticks, and upon our indigenous plants. This great curiosity he kept with the same assiduity, as the late duke of *Tuscany* did the great double-blossomed *Arabian* jessamine at *Pisa*, where centinels always attended, that cuttings (by which it can be propagated) might not be taken away.

However, mons. *Le Cour* is now become more communicative of this his favourite flower, by which means it has reached *Edinburgh*. Its culture is the same as that for the single, (which I think for smell is preferable) except with this difference, that I pot the double at first planting, setting them in a very moderate tan-bed. Their off-sets, from which flowers are only to be produced, I planted in *March* in the same compost I used for hyacinths, setting them in a gentle bed of tan-bark; in *June* I removed the glass-covers, and in their place erected hoops covered with matts; in *September* or *October*, when their leaves were quite down, I took them up, preserving them in a dry warm place, until *March* or *April* the season for planting. As soon as their flowers open the tunicle upon the head of the stems, put them into a green-house, or in a chamber that is well exposed to the sun, where they will expand their blossoms with surprising beauty and vigour.

*The Description of the Pine-apple, or Ananas Stoves, and the Culture of these Plants to bring them to Fruit.**

HAVING already laid down the necessary directions for making hot-beds for the kitchen-garden use, as well to have their produce early, as in perfection; I shall now proceed to give my directions for erecting the Ananas or

* *The culture of the Pine-apple, and the management of the Stove, being considered the most capital things in Gardening, we shall, in order to give every thing necessary for the instruction of young practitioners, introduce such directions as have been given by Philip Miller, Esq; of whom our author makes most honourable mention; and with them, the plans of such stoves as are in general use.*

Stoves are contrivances for the preserving tender exotick plants, which will not live in these northern countries, without artificial warmth in winter. These are built in different methods, according to the ingenuity of the artist, or the different purposes for which they are intended, but in *England* they are at present reducible to two or three.

The first is called a dry stove, being so contrived, that the flues through which the fruit passes, are either carried under the pavement of the floor, or else are erected in the back part of the house, over each other, and are returned six or eight times the whole length of the stove, according to the height. In these stoves the plants are placed on shelves of boards laid on a scaffold, rising above each other like the seats in a theatre, for the greater advantage of their standing in sight, and enjoying an equal share of light and air. In these stoves are commonly placed the tender sorts of Aloes, Cereuses, Euphorbiums, Tithymals, and other succulent plants, which are impatient of moisture in winter, and require for the most part to be kept in a separate stove, and not placed among trees, or herbaceous plants, which perspire freely, and thereby often cause a damp air in the house, which

or Pine-apple stoves, with the culture of that excellent fruit: Previous to this it will be requisite to attend to the following particulars; 1^{mo}, To give such a warmth to the air in the house, as to raise Mr. *Fowler's*, or Mr. *Coles's*

which is imbibed by the succulent plants, to their no small prejudice. These stoves may be regulated by a thermometer, so as not to over-heat them, nor to let the plants suffer by cold; in order to which, all such plants as require nearly the same degree of heat, should be placed by themselves in a separate house, for if in the same stove there are plants placed of many different countries, which require as many different heats, by making the house warm enough for some plants, others by having too much heat, are drawn and spoiled.

The other sort of stoves are commonly called bark stoves, to distinguish them from the dry stoves already mentioned. These have a large pit, nearly the length of the house, three feet deep, and six or seven wide, according to the breadth of the house, which pit is filled with tanners' bark to make a hot-bed, and in this bed the pots of the most tender exotick trees, and herbaceous plants, are plunged. The heat of this bed being moderate, the roots of the plants are always kept in action, and the moisture, detained by the bark, keeps the fibres of their roots in a ductile state, which, in a dry stove, where they are placed upon shelves, are subject to dry too fast, to the great injury of the plants. In these stoves, if they are rightly contrived, may be preserved the most tender exotick trees and plants, which, before the use of the bark was introduced, were thought impossible to be kept in *England*; but, as there is some skill required in the structure of these stoves, I shall not only describe them as intelligibly as possible, but also annex plans of them, by which it is hoped every curious person will be capable of directing his workmen in their structure.

The dimension of these stoves should be proportioned to the number of plants intended to be preserved, or the particular fancy of the owner; but their length should
not

Coler's botanical thermometers to the Anana's heat, or to five or ten degrees above that point, and to keep to the same, which depends on the right structure of the fire-place; for which purpose I would advise the use

not exceed forty feet, unless there are two fire-places, and in that case it will be proper to make a partition of glass in the middle, and to have two tan-pits, that there may be two different degrees of heat for plants from different countries (for the reasons before given, in the account of dry stoves,) and were I to erect a range of stoves, they should be all built in one, and only divided with glass partitions, at least the half way toward the front, which will be of great advantage to the plants, because they may have the air in each division shifted by sliding the glasses of the partitions, or by opening the glass door, which should be made between each division for the more easy passage from one to the other.

These stoves should be raised above the level of the ground, in proportion to the dryness of the place; for if they are built on a moist situation, the whole should be placed on the top of the ground, so that the brick-work in front must be raised three feet above the surface, which is the depth of the bark-bed, whereby none of the bark will be in danger of lying in water; but, if the soil be dry, the brick-work in front need not be more than one foot above ground, and the pit may be sunk two feet below the surface. Upon the top of this brick-work in front must be laid the plate of timber, into which the wood-work of the frame is to be mortised; this should be of sound oak, without sap, the dimension ten inches wide, and six deep, and the upright timbers in front must be placed four feet asunder, or somewhat more, which is the proportion of the width of the glass doors or sashes; these should be about six feet and a half, or seven feet long, and placed upright; their dimensions should be nine inches by six, of yellow fir; but from the top of these should be sloping glasses, which should reach within three feet of the back of the stove, where there should be a strong crown piece of timber placed,

use of a furnace invented by Mr. *James Scot* at *Turnbam Green* near *London*, charged three-pence *per* pound; to which must be fitted a wrought iron door, hooks, and a latch, to be fixed in the oven, which must be suited

placed, in which there should be a groove made for the glasses to slide into; the dimension of the sloping timbers should be ten inches by nine, of yellow fir, and the crown plate one foot by nine or ten inches, of the same timber. The wall in the back part of the stove should be at least thirteen inches thick, but eighteen or twenty-two inches, which is two bricks and a half, will do better, for the greater thickness there is in the back-wall, the more heat will be thrown to the front, whereby the air of the stove will be better warmed, and the building will be so much stronger, for to this back-wall the flues, through which the smoke is to pass, must be joined. This back-wall should be carried up about sixteen feet high, or more for tall stoves, that they may be of a proper height to support the timbers of the back-roof, which covers the shed behind the stove. This roof is fastened into the crown-piece before-mentioned, which in tall stoves should be about thirty feet above the surface of the tan-bed, which will give a sufficient declivity to the sloping glasses to carry off the wet, and be of a reasonable height for containing many tall plants. The back-roof may be slated, covered with lead, or tiled, according to the fancy of the owner, but the manner of the outside building is better expressed by the annexed plan, than is possible to be described in words.

In the front of the house, before the tan-bed, there should be a walk, about two feet wide, for the convenience of walking; next to which the bark-pit must be placed, which should be in width proportionable to the breadth of the house. If the house is fourteen feet wide, which is a due proportion, the pit may be eight feet wide, and behind the pit should be a walk two feet wide, to pass, in order to water the plants, &c. then there will be two feet left next the back-wall, to erect the flues, which must be all raised above the level

ed to the largeness of the stove: It will be requisite to build the oven within the stove, but in such a manner, that there may be two or three feet between any part of it and the tan-pit; for if there is not such a space,

level of the bark-bed. These flues ought to be one foot wide in the clear, that they may not be too soon stopped with the foot, as also for the more conveniently cleaning them; the lower flue, into which the smoke first enters from the fire, should be two feet deep in the clear; this should be covered with broad tiles, which should be a foot and a half square, that they may be wide enough to extend over the wall in front of the flues, and to take sufficient hold of the back-wall; over this the second flue must be returned back again, which may be eighteen inches deep, and covered on the top as before, and so in like manner the flues may be returned over each other six or eight times, that the heat may be spent before the smoke passes off. The thickness of the wall in front of these flues need not be more than four inches, but it must be well jointed with mortar, and pargetered within side, to prevent the smoke from getting into the house; and the outside should be faced with mortar, and covered with a coarse cloth, to keep the mortar from cracking, as is practised in setting coppers. If this be carefully done, there will be no danger of the smoke entering the house, which cannot be too carefully guarded against, for there is nothing more injurious to plants, than smoke, which will cause them to drop their leaves, and, if it continue long in the house, will entirely destroy them.

The fire-place must be made at one end, where there is but one; but, if the stove is so long as to require two, they should be placed at each end of the shed, which must be made the length of the stove, that the fires and the back of the flues may not suffer from the outer air, for it will be impossible to make the fire burn equally, where the wind has full liberty to enter, and it will be troublesome to attend the fire in wet weather, where it is exposed to the rain.

The

space, the bark would be too much dried, and consequently it would not ferment properly. The oven which is to be set in the stove, is to be secured by two trelaces from its sides, fixed with brick, and over the
oven

The contrivance of the furnace must be according to the fuel which is designed to be burnt, but as turf is the cheapest firing for stoves, where it can be had, many prefer it, because it lasts longer than any other sort of fuel, and so requires less attendance, I shall describe a proper sort of furnace for that purpose.

The whole of this furnace should be erected within the house, which will be a great addition to the heat, and the front-wall on the outside of the fire-place, next the shed, should be three bricks thick, the better to prevent the heat from coming out that way. The door of the furnace, where the fuel is put in, must be as small as conveniently may be, to admit the fuel; and this door should be placed near the upper part of the furnace, and made to shut as close as possible, so that there may but little of the heat pass off through it. This furnace should be about twenty inches deep, and sixteen inches square at bottom, but may be sloped off on every side, so as to be two feet square at the top; and under this furnace should be a place for the ashes to fall into, about a foot deep, and as wide as the bottom of the furnace; this should also have an iron door, to shut as close as possible; but just over the ash-hole, above the bars which support the fuel, should be a square hole about four or six inches wide, to let in the air to make the fire burn; this must also have an iron frame, and a door to shut close when the fire is perfectly lighted, which will make the fuel last longer, and the heat will be more moderate.

The top of this furnace should be nearly equal to the top of the bark-bed, that the lowest flue may be above the fire, so that there may be a greater draught for the smoke, and the furnace should be arched over with bricks. The best materials for this purpose are what the bricklayers call *Windfor* bricks, which should be laid
in

oven is to be laid a large cast-iron plate, over which you may raise a brick arch, covered with some broad tiles, two feet every way, cemented together with good mortar, and some pan-cratch laid on the tiles, whereupon you

in loam of the same kind as that the bricks are made with, and this, when burnt by fire, will cement the whole together, and become like one brick, but you should be very careful, where-ever the fire is placed, that it be not too near the bark-bed; for the heat of the fire will, by its long continuance, dry the bark, so that it will lose its virtue, and be in danger of taking fire; to prevent which, it will be the best method to continue a hollow between the brick-work of the fire and that of the pit, about eight inches wide, which will effectually prevent any damage arising from the heat of the fire; nor should there be any wood-work placed near the flues, or the fire-place, because the continual heat of the stove may, in time, dry it so much, as to cause it to take fire, which ought to be very carefully guarded against.

The entrance into this stove should be either from a green-house, the dry stove, or else through the shed where the fire is made, because in cold weather the front glasses must not be opened. The inside of the house should be clean white-washed, because the whiter the back part of the house is, the better it will reflect the light, which is of great consequence to plants, especially in winter, when the stove is obliged to be shut up close.

Over the top sliding glasses there should be either wooden shutters, or tarpaulins fixed in frames, to cover them in bad weather, to prevent the wet from getting through the glasses, and to secure them from being broken by storms and hail, and these outer coverings will be very serviceable to keep out the frost, and if in very severe cold there is a tarpawlin hung before the upright glasses in the front, it will be of great service to the stove, and much less fire will preserve a heat in the house.

In

you may set the *Melo-cactus*, and the *Echinomelo-cactus* plants. There are some who build a flue in the fronts of their stoves, near the glasses; this practice is wrong, as this flue dries the bark so much, as to stop all fermentation

In the warmest of these houses or divisions should be placed the most tender exotic trees and plants; a list of which followeth:

Acajou, or Cashew,
 Ahouai,
 Allegator Pear,
 Allspice, or Pimento,
 Arrow Root,
 Bananas,
 Bastard Cedar of *Barbadoes*,
 Bastard Locust of *Barbadoes*,
 Bully Tree,
 Button Wood of *Barbadoes*,
 Cabbage Tree,
 Cocoa Tree,
 Calibash Tree,
 Cassada,
 Cedar Tree of *Barbadoes*,
 Cherry Tree of *Barbadoes*,
 Cocoa Nut Tree,
 Cortex Winteranus,
 Custard Apple,
 Date Tree,
 Dumb Cane,
 Fiddle Wood,
 Fig Tree, the Arched *Indian*,
 Flower Fence of *Barbadoes*,
 Fustick Tree,
 Ginger,
 Guiacum,
 Logwood,
 Macaw Tree,
 Mamee Tree,
 Mancinel Tree,

Mimosa,

mentation from whence the heat proceeds; besides, there is not the least occasion for this flue, as those in the rear are sufficient to warm the air above the tan-pits, which is all that is required. *2do*, Observe that the

Mimosa, or Sensitive Plants,
Nickar Tree, or Bonduc,
Palm Trees of several sorts,
Papaw Tree,
Plantane Tree,
Plum Tree of *Jamaica*,
Hog Plum,
Sapotilla Tree,
Santa Maria,
Sour Sop,
Sugar Apple,
Sweet Sop,
Tamarind Tree,
Tulip Flower, or Whitewood.

These, with most other sorts of trees, shrubs, and herbaceous plants, which are natives of very warm countries, should be plunged in the bark-bed for the reasons already assigned, and over the flues may be a conveniency made to set the Melon-thistle, the tender sorts of Cereuses, and Euphorbiums, with other very tender succulent plants, which require to be kept dry in winter.

As in this stove are placed the plants of the hottest parts of the *East* and *West-Indies*; the heat should be kept up equal to that marked *Anana* upon the botanical thermometers, and should never be suffered to be above eight or ten degrees cooler at most, nor should the spirit be raised above ten degrees higher in the thermometer during the winter season, both which extremes will be equally injurious to the plants.

But in order to judge more exactly of the temper of the air in the stove, the thermometer should be hung at a good distance from the fire, and the tube should not be exposed to the sun, but, on the contrary, as much in

K

shade

the first flue must be higher than the bark-pit, No. 6. by six inches at least, to be built two feet and a half high, and ten inches broad, so as a foot-tyle may cover it; the second flue, No. 3. may be two feet three inches;

shade as possible, because, whenever the sun shines upon the ball of the thermometer, but one single hour, it will raise the liquor in the tube considerably, when perhaps the air of the house is not near so warm, which many times deceives those who are not aware of this.

In the management of the plants placed in the bark-bed, there must be particular regard had to the temper of the bark, and the air of the house, that neither be too violent; as also to water them frequently, but sparingly, in cold weather, because when they are in continual warmth, which will cause them to perspire freely, if they have not a proper supply to answer their discharge, their leaves will decay, and soon fall off.

The other sort of stove, commonly called the dry stove, as was before said, may be either built with upright and sloping glasses at the top, in the same manner, and after the same model of the bark-stove, which is the most convenient; or else the front glasses, which should run from the floor of the cieling, may be laid sloping, to an angle of forty-five degrees, the better to admit the rays of the sun in spring and autumn. The latter method has been chiefly followed by most persons who have built these sorts of stoves, but were I to have the contrivance of a stove of this kind, I would have it built after the model of the bark-stove, with upright glasses in front, and sloping glasses over them, because this will more easily admit the sun at all the different seasons, for in summer, when the sun is high, the top-glasses will admit the rays to shine almost all over the house, and in winter, when the sun is low, the front glasses will admit its rays; whereas, when the glasses are laid to any declivity in one direction, the rays of the sun will not fall directly thereon above a fortnight in autumn, and about the same time in spring, and during the other parts of the year they will fall obliquely thereon, and in summer,

inches; and those marked No. 4. two feet in height, ascending gradually with the rise of one foot, to the highest flues, No. 4. for the better drawing of the smoke:

3th, The depth of both the tan-beds must be four feet.

4th,

mer, when the sun is high, the rays will not reach above five or six feet from the glasses. Besides, the plants, placed toward the back part of the house, will not thrive in the summer season, for want of air, whereas, when there are sloping glasses at the top, which run within four feet of the back of the house, these, by being drawn down in hot weather, will let in perpendicular air to all the plants; and of how much service this is to all sorts of plants, every one who has had opportunity of observing the growth of plants in a stove, will easily judge; for when plants are placed under cover of a cieling, they always turn towards the air and light, and thereby grow crooked; and if in order to preserve them strait, they are turned every week, they will nevertheless grow weak, and look pale and sickly; for which reasons, I am sure, whoever has made trial of both sorts of stoves, will readily join with me to recommend the model of the bark-stove for every purpose.

As to the farther contrivance of this stove, it will be necessary to observe the temper of the place, whether the situation be dry or wet; if it be dry, then the floor need not be raised above two feet above the level of the ground, but if it be wet, it will be proper to raise it three feet, especially if these flues are to be carried under the floor; for when they are erected close upon the surface of the ground, these will raise a damp, which will prevent the flues drawing so well as when they are more elevated. The furnace of this stove must be placed at one end of the house, according to the directions before given. This must be made according to the fuel intended to burn, which, if for coals or wood, may be made according to the common method for coppers, but only much larger, because, as the fire is to be continued in the night chiefly, if there is not room to contain a proper quantity of fuel, it will occasion much trouble

4th, Not any cross-bars are to be used in the glass-frames, as they interrupt the steam or water collected in the stove from running off the inside of the glass roof, so that

in attending the fire in the night, which should be avoided as much as possible; because whenever the trouble is made very great or difficult, and the person, who is intrusted with the care of it, has not a very great affection for the thing, and is withal not very careful, there will be great hazard of the fire being neglected, which in a little time may be of dangerous consequence to the plants; but, if the fuel intended be turf, then the contrivance of the furnace may be the same as for the bark-stove already mentioned. The flues of this stove, if they are carried under the pavement, may be turned after the manner of *Fig. I.* in the plate, which will cause them to draw better than if strait, and by this method of disposing them, they may be so much turned as to reach from the back to the front of the house.

The depth of them should not be less than eighteen inches, and the width nearly equal, which will prevent their being choaked up with soot, as is often the case when the flues are made too small. The spaces between the flues should be filled up either with dry brick rubbish, lime, or sand, from which there will little moisture arise, and the flues should be closely plastered with loam, both within and without, and the upper part of them covered with a coarse cloth under the floor, to prevent the smoke from getting into the house.

When the flue is carried from the furnace to the end of the house, it may be returned in the back above the floor twice in strait lines, which may be contrived to appear like a step or two, by which means the smoke will be continued in the house until all its heat is spent, which will consequently warm the air of the house the better, and the chimneys, through which the smoke is to pass off, may be either at both ends or in the middle, carried up in the thickness of the brick work of the flues, so as not to appear in sight

that the steam drops upon the plants, which is of most pernicious consequence. 5^{to}, The shed to inclose the fronts of the ovens should have the doors in the ends, and

sight in the house. The flues should be first covered with broad tiles, and then a bed of sand laid over them, about two inches thick, upon which the plain tiles should be laid, to correspond with the rest of the floor. This thickness of cover will be full enough to prevent the too sudden rise of the heat from the flues.

But if the furnace is placed under the floor, the thickness of the sand between the brick arch that covers it, and the floor, should not be less than four or six inches; so that the bottom of the furnace should be sunk the lower; and if from the fire-place to the end of the house, the flues are laid a little rising, it will cause them to draw the better; but this rise must be allowed in the placing them lower under the floor next the fire, because the floor must be laid perfectly level, otherwise it will appear unsightly.

In this stove there should be a stand or scaffold erected for placing shelves above each other, in the manner of *Fig. II.* in the plate, that the plants may be disposed above each other, so as to make a handsome appearance in the house; but these shelves should be made moveable, so as to be raised or sunk, according to the various heights of the plants; otherwise it will be very troublesome to raise or sink every particular plant, according to their heights, or every year as they advance in their growth.

In placing the feet of this stand, you must be careful not to set them too near the fire, nor directly upon the top of the flue, especially that end next the fire, lest, by the constant heat of the tiles, the wood should take fire, which cannot be too much guarded against; since such an accident would probably destroy all the plants, if the house escaped being burnt. This stand or scaffold should be placed in the middle of the house, leaving a passage about two feet and a half in the front,

and not in the rear; for, in order to cover the upper range of glasses with their wooden covers, it may be necessary to use a ladder, which otherwise might obstruct their opening. *6to*, I thought it quite adviseable to have

and another of the same width in the back, for the more conveniently passing round the plants to water them; and that the air may freely circulate about them. In disposing the plants, the tallest should be placed backward, and the smallest in front; so that there will not be occasion for more than five or six shelves in height at most; but the scaffold should be so contrived, that there may be two or three shelves in breadth laid upon every rise, whenever there may be occasion for it, which will save a deal of trouble in disposing of the plants.

In the erection of these stoves, it will be of great service to join them all together with only glass partitions between them, as was before observed; and where several of these stoves and green-houses are required in one garden, then it will be very proper to have the green-house in the middle, and the stoves at each end, or carried on in one strait front.

By this contrivance in the structure of these houses, a person may pass from one to the other of them, without going into the open air; which, besides the pleasure to the owner, is also of great use, because there will be no occasion of making a back-way into each of them, which otherwise must be, since the front glasses of the stove should not be opened in cold weather, if it can possibly be avoided on any account, otherwise the cold air rushing in, will greatly prejudice the very tender plants.

But besides the stoves here described, and the green-house, it will be very necessary to have a glass-case or two, where-ever there are great collections of plants. These may be built exactly in the manner already described for the stoves, with upright glasses in front, and sloping glasses over the top of them, which should run within four feet of the back of the house. The height, depth,

have small front windows to this stove, to admit air by them, when it cannot be done by raising the upper glasses. If your soil is wet, the whole of the stove should be built above ground; but, on the contrary, if you

depth, and other dimensions, should be conformable to that of the stoves, which will make a regularity in the building. These may be placed at the end of the range on each hand beyond the stoves; and if there be a flue carried round each of these, with an oven to make a fire in very cold weather, it will save a great deal of trouble, and prevent the frost from ever entering the house, be the winter ever so severe; but the upper glasses of these houses should have either shutters of wood, or tarpawlins in frames, to cover them in frosty weather; and if there is a contrivance to cover the upright glasses in frost, either with mats, shutters, or tarpawlins, it will be of great use in winter, otherwise the flue must be used when the frost comes on, which should not be done but upon extraordinary occasions, because the design of these houses is, to keep such plants as require only to be preserved from frost, and need no additional warmth; but at the same time, require more air than can conveniently be given them in a green-house. In one of these houses may be placed all the sorts of *Ficoides*, *African Sedums*, *Cotyledons*, and other succulent plants from the *Cape of Good Hope*. In the other may be placed the several kinds of *Arctotis*, *Osteospermum*, *Royena*, *Lotus*, and other woody or herbaceous plants from the same country, or any other in the same latitude.

Thus, by contriving the green-house in the middle, and one stove and a glass-case at each end, there will be a conveniency to keep plants from all the different parts of the world, which can be no otherwise maintained but by placing them in different degrees of heat, according to the places of their native growth.

The stoves before described are such as are usually built to maintain exotic plants, which will not live in *England*,

you have a dry soil, the front of the stove may rise two feet above the surface, and have upright windows in both ends. The full expence for erecting and completing this stove, will be near forty-eight pounds, and the annual charge for repairs about five.

There.

unless they enjoy a temperature of air, approaching to that of the several countries from whence they are brought; therefore, whoever is inclinable to preserve a large collection of plants from different countries, must contrive to have two or three of these stoves, each of which should be kept in a different temperature of warmth; and the plants should be also adapted to the several degrees of heat, as they shall require to preserve them; and as the far greater number of stoves, which have been erected in *England*, are designed for the culture of the Ananas only, so I shall add a description and plans of two sorts of stoves, of the least expence in building, for this purpose; so that whoever is inclinable to erect a stove for ripening the Ananas, may, by attending to the plans and descriptions, direct the building and contriving such stoves as they are desirous to have, or according to the number of fruit proposed to be ripened annually.

The first sort of stove is that which is designed for the the plants which produce the fruit the same year; for as the plants do not generally fruit, until the second year from their being taken from the old plants, whether they are suckers taken from the side of the plant, or crowns taken from the fruit, if they fruit the succeeding year, the fruit will be small; therefore, when they are properly managed, they will not produce their fruit until the second year; by which time they will have obtained strength to produce large fruit, in which their greatest value consists; for although there are several varieties of this fruit, which differ in degrees of goodness, as in most other fruits; yet they may all of them be improved in their size, without diminishing their excellencies in taste; though I know there are some persons of a contrary opinion, and who believe, that the
small

There are some who set those plants in glazed frames, made three feet high at the back, sloping to one and a half in front, and six feet wide, with which they cover a tan-pit of three feet deep, built on all sides with a stone wall, and paved at bottom, observing that
one

small fruit are always better flavoured than the large; but from long experience I can assert, that the larger and better nourished this fruit is, the higher will be its flavour, supposing the sorts are the same; therefore every person, who cultivates this fruit, should endeavour to have it improved to the greatest perfection; in order to which it will be proper to have a small stove, in which the young plants may be placed, to bring them forward for fruiting; and the following autumn they should be removed into the larger stove for ripening:—But I shall return to the description of the larger stove. The length of this must be proportionable to the quantity of fruit desired in one season; for as to their width, that should not be much varied; the tan-bed should never be narrower than six, nor should it be more than seven feet wide; for, when it is more, there will be difficulty in reaching those plants which are in the middle of the bed, to water or clean them, and if there is room enough on each side of the bed for a walk, a foot and a half broad, it will be sufficient for persons to water and do every thing which is necessary to the plants; and as these places are not designed for walking in, so it is to no purpose to have broad walks, which will take up too much space; and the fires must be larger, in proportion to the space of the house; otherwise the air cannot be kept in a proper temperature of warmth. If the stove is made thirty-six feet long in the clear, then the tan-bed may be made thirty-three feet long, and a walk left at each end a foot and a half wide; which will be sufficient to walk round the bed, to water and attend the plants; and such a tan-bed will contain eighty fruiting plants very well, if the bed is seven feet wide; and this stove may be very well warmed with one fire; but if the stove is much larger, there must be two fire-places contrived,
one

one foot is to be sunk under the surface, and the other two above it. Others have these beds with a brick wall at the back, in which there are three flues and a furnace below, to warm the air in winter; and here they nurse the young crowns, and youngest off-sets in winter, laying over

one at each end, otherwise the air of the house cannot be kept in a proper temperature of heat. The quantity of fuel which will be wanting for a stove of thirty-six feet long in the clear, is about three chaldron and a half of coals, or in such proportion for any other sort of fuel; when coals can be had reasonable, it is the best kind of fuel; and the pit or *Scotch* coal is preferable to the *Newcastle* coal, because the latter is very subject to melt or run into clinkers, when the oven is very hot, which the pit-coal never does, but always burns away with a white ash, making but little soot; so that the flues will not require to be so often cleaned, as when the other coal is used. The next best fuel for stoves is peat, where it can be procured good, but the scent of this fuel is disagreeable to many people. There are some persons who burn wood in their stoves; but this fuel requires much greater attendance than any other, therefore is not very proper for this purpose; but in the building of the stoves, the ovens must be contrived for the sort of fuel, which is to be used in them; but these will be afterward described, and the places where they should be situated, are delineated in the plan.

The stoves designed for ripening the fruit of the *Ananas*, should have upright glassess in their front, which should be high enough to admit a person to walk upright under them on the walk in the front of the house; or, where this cannot be admitted, the front walk may be sunk one foot lower than that on the back of the tan-bed, so that the surface of the bed will be a foot above the walk, which will be rather an advantage, as the plants will be so much nearer the glass; and a person may, with great ease, water and attend the plants, when they are thus raised above the walk; therefore, when a stove is so situated, as that the raising of it high above ground, might be attended with inconvenience, the walks

over the glasses a tarpawlin or thin board covers, where you should have the thermometer regulated by Mr. Miller's of *Chelfea*. The frame of the last construction I would recommend, as they serve both winter and summer use: And it is very necessary to have these frames
at

walks quite round the tan-bed may be sunk a foot or eighteen inches below the top of the bed; which will admit of the stove being built so much lower; for if there is height for a person to walk under the glasses, it will be as much as is required; but as the flues, when returned four times against the back-wall, will rise near seven feet, so the bottom of the lower flue should be on the same level with the walk, to admit room enough for the whole under the roof. Over the upright glasses there must be a range of sloping glasses, which must run to join the roof; which should come so far from the back-wall, as to cover the flues, and the walk behind the tan-pit: for if the sloping glasses are of length sufficient to reach nearly over the bed, the plants will require no more light; therefore these glasses should not be longer than is absolutely necessary, which will render them more manageable; but the annexed plan will render this more intelligible than any written description can do.

The other sort of stove, which is designed for raising of young plants, until they are of a proper size to produce fruit, need not be built so high as the former; therefore there will not be wanting any upright glasses in the front; but the frames may be made in one slope, as in the annexed plan: indeed, of late years, many persons have made tan-beds, with two flues running through the back-wall, to warm the air in winter; and these beds have been covered with glasses, made in the same manner as those for common hot-beds, but larger; these were contrived to save expence, and in many cases have answered the intention, but to these there are several objections. 1. That of having no passage into them; so that the glasses must be taken off, when the plants want water, &c. 2. The damps very often rise in the winter
season,

at work, as well as the stoves, where there are much fruit. The expence of erecting such a frame, or small stove, will be about sixteen pounds, and the annual charge three. In these frames you may ripen three dozen of fruit every year.

I would

season, when the glasses are closely shut, which often proves very injurious to the plants. 3. There is danger of the tan taking fire, where there is not great care taken that it doth not lie near the flues; so that although the small stoves here proposed require more expence in the building, yet, being greatly preferable to those pits, and the after-expence being the same, they will be found so much more convenient, as to render them more general, where the fruit is cultivated.

Where there is no danger of the wet settling about the tan in winter, the bark-pit may be sunk two feet deep in the ground, and raised one foot above the surface; the only walk which is necessary in these stoves, is that on the back of the tan-bed, which may be on a level with the surface of the ground, so that the tan-bed will be more than one foot above the walk, and the flues beginning from the level of the walk, there will be room to return them three times; which will warm the air much more, with the same fire, than when they are carried but twice the length of the stove.

But in wet land, the tan-bed should be wholly raised above the level of the ground, in order to preserve the tan from being chilled by moisture; and in such places the walk on the back should be raised near two feet above the level of the ground; because the tan-bed should not rise much more than one foot above the walk; for if it is higher, it will be more difficult to reach the plants when they require water; the brick wall of the pit, on the side next the walk, need not be more than four inches thick, so far as rises above the walk; but below that, it should be nine inches thick. The reason for reducing the wall above, is to gain room for the walk, which would otherwise be too much contracted; and if there is a kirk of oak laid on the top
of

I would recommend this small stove for the plants, when first brought in, in preference to the larger, as the air in them is sooner heated, and more easily admitted; these stoves are also of singular use, to bring forward the crowns and young plants, and prepare them

of the four-inch wall, it will secure the bricks from being displaced, and sufficiently strengthen the wall; which being but one foot above the walk, will not be in any danger of falling; and on this kirb there may be two or three upright iron bars, fixed with claws, to support the crown-piece of timber, which will secure it from hanging in the middle, which in a great length is very often the case, where there are no supports laid under it; there may be more of these bars, according to the length of the stove; but if they are about ten feet asunder, it will be near enough. If these iron bars are one inch square, they will be strong enough to answer the design.

But as it is hoped that the annexed plan of this small stove will convey a clear idea of the whole contrivance; this will render it unnecessary to add any farther description here:

An Explanation of the Plate which represents the two sorts of Frames with oiled Paper for covering Melons.

THE first of these frames is contrived like the covers of waggons; it has a frame of wood at the base, to which are fastened broad hoops, which are bent over circularly, as is represented in fig. 1. The width of this frame should be from five to six feet, for less than five feet will not be sufficient to cover the bed, and if they are more than six feet broad, they will be too heavy and troublesome to move. *a* Shews the section of the width; *b* the frame of wood at the base; *c* the arch of hoops; and *d* a small slip of wood which is fastened to the under side of the hoops, to keep them in their proper position.

The distance between each hoop should not be more than one foot, and there should be two rows of strong pack-

them for the larger or fruiting stove; and where a great quantity of fruit is wanted, there may be one of these frames at each end of the larger, for a more regular appearance. A plan of this stove and nursery-bed is given in the copper-plate. The back wall of these stoves should
be

packthread or rope-yarn on each side of the arch, running from hoop to hoop, at the places marked *e. e. e. e.* to keep the oiled paper from sinking down with wet. The length of each frame should not be much more than ten feet, which will be sufficient length for covering three plants; that being about the size of a three-light frame; for if they are longer, they will be heavy and troublesome to move; therefore there should be as many of these frames made, as may be necessary for covering the quantity of plants desired. Fig. 2. represents two lengths of these frames joined; *G.* shews the profile of the frame; and *H.* represents the paper turned back, that it may be seen how it is laid over the frame.

Fig. 3. represents the other sort of frame, which is contrived like the roof of a house; *a* shews a section of the base; *bb* the two slopes; *c* one of the sides which is contrived to be raised at any time to admit air to the plants; *d* shews the place where this shuts down; and *e* the prop which supports it. If in the making of these frames every other light is made with hinges, so as to be raised, and on the opposite side they are contrived to rise alternately, it will be a very good method; for then air may be given at the side contrary to the wind, and in very warm weather, when the plants require a large share of air, they may all be raised on both sides, which will convey a thorough air to the whole bed Fig. 4. shews the plane of these frames, and fig. 5. the same erected; *g* represents the profile of it, and *f* the covering of paper. This sort of frame may be made of pantile laths, or of slips of deal of like dimensions, because they should not be too heavy; but the base of the frame to which they are fastened, should be more substantial. Some persons, who have made trial of both, recommend

be two feet thick, and the flues thus disposed of; the first flue to be two feet high, and nine inches broad; the second, one foot nine inches high, the breadth the same; the third, fourteen inches high, and the same breadth; to be covered with brick four inches thick; and

mend the latter for the convenience of giving air to the plants, for there is no other contrivance in the first sort for admitting the air, but by raising the whole frame on one side in proportion to the quantity of air intended to be admitted, and when the season is warm, they generally raise those frames on both sides, and permit the plants to run from under them.

When these frames are made, if they are well painted over with the following composition, it will greatly preserve them, viz. to every six pounds of melted pitch, add half a pint of lintseed oil, and a pound of brick dust; these should be well mixed together, and used warm; when this dries, it becomes a hard cement, so that no moisture can penetrate through it, and is the best sort of pigment for all timber exposed to the weather, I have ever seen used; so that where the colour is not offensive to the sight, it should be preferred to every other.

When the frames are thoroughly dry, the paper should be pasted on to the frames. The best sort of paper for this purpose, is what they call *Dutch wrapper*, this is strong, and, when oiled, becomes very pellucid, and admits the rays of light through it extremely well. After the paste is well dried, the paper should be oiled over on the outside, which, if well done with lintseed-oil, will be sufficient, for the oil will soak quite through the paper, so there will be no necessity for oiling both sides, nor for doing it over more than once. The oil should be dry before the frames are exposed to the wet, otherwise the paper will tear. In the pasting of the paper on the frames, there should be care taken to stretch it very smooth, and also to paste it to all the ribs of the frames, and also to the packthreads, to prevent the wind from raising the paper, which would soon tear it, when it became loose.

The

and should the top flue be supposed to come too near the timber of the frame, the wall may be raised a foot or two.

The

The description just given, together with the annexed plan, it is hoped, will be sufficient instructions for any one who is desirous of making these covers, and what has been before mentioned under the article *Melon*, will be directions enough for the use of them, so that I shall only add one caution, which may be necessary to repeat here, which is, not to keep these covers too close down upon the plants, lest it draw them too weak, so that air should always be admitted to the plants at all times, in proportion to the warmth of the season.

These covers of oiled paper are not only useful for covering of Melons, but are the best things to cover cuttings of exotic plants, when planted, that can be contrived; and are also capable of being used for many other purposes.

The paper will seldom last longer than one season, so it will require a new covering every spring, but if the frames are well made, and when they are out of use, laid up in shelter from the wet, they will last several years, especially if there is a band of straw laid round the Melons, upon which the frame may stand, so they will not rest upon the ground, and the straw bands will prevent the damp from rising so as to rot them. These straw bands are such as are recommended for the hot-beds of Asparagus in winter.



Mr. Miller's Directions for raising the Anana, or Pine-Apple.

These plants are propagated by planting the crowns which grow on the fruit, or the suckers which are produced either from the plants, or under the fruit; either of which I have found to be equally good; although by some

Two Sorts of Frames with oyled Paper for Covering Melons.

Fig. 2.



Fig. 1.

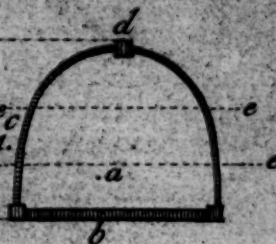


Fig. 4.

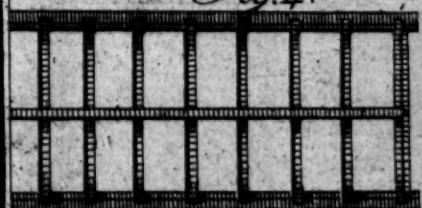


Fig. 4.

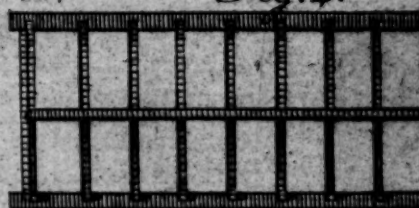


Fig. 5.



Fig. 3.

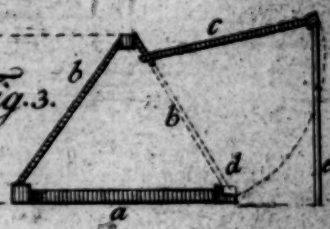
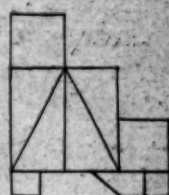
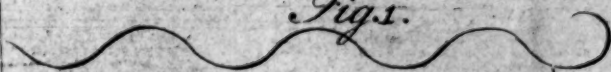


Fig. 2.



Figs.

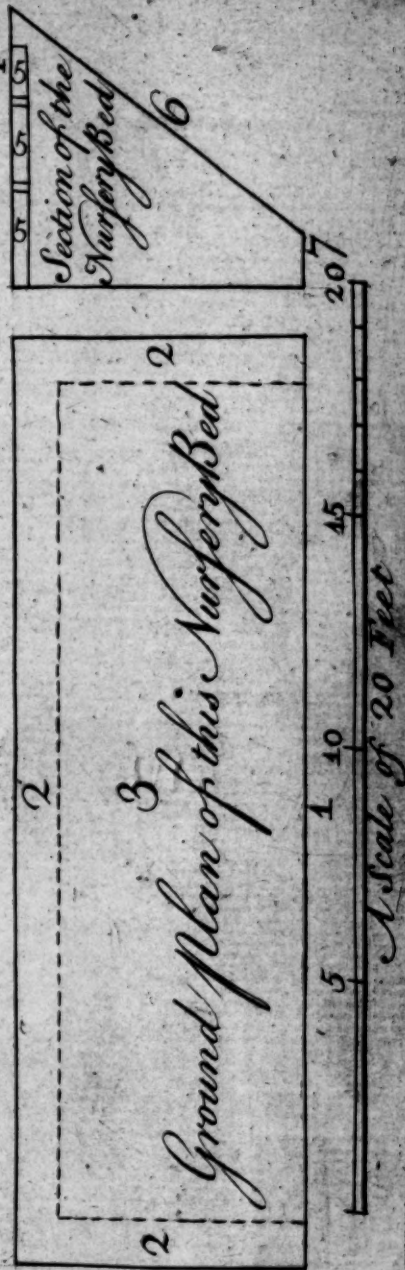




PLAN of the Nursery Bed for the Crowns & Suckers of the Pine apples.

1 the length of the Stove within Walls 20 feet. — 2 the walks at the Back and two Ends one foot each in breadth. — 3 the Tann Pit 18 feet long 5 broad and three feet deep. — 4 the height of the Back Wall 6 feet. — 5 three flues. — 6 Slope Glasses about eight feet long. — 7 the front Glasses two feet high. —

NB: the furnace as in the other Stove but it must be inverted into the Shade which covers it.





The compost, which you are to prepare some months before, is to consist of two thirds of good loamy kitchen-garden mould, and if of a yellow rich loam, the better, one third of old rotted cows dung, and when the latter

is

some persons the crown is thought preferable to the suckers, as supposing it will produce fruit sooner which is certainly a mistake; for by constant experience I find the suckers (if equally strong) will fruit as soon, and produce as large fruit, as the crowns.

The suckers and crowns must be laid to dry in a warm place, for four or five days, or more, (according to the moisture of the part which adhered to the old plant or fruit); for, if they are immediately planted, they will rot. The certain rule of judging when they are fit to plant, is by observing if the bottom is healed over, and become hard; for if the suckers are drawn off carefully from the old plants, they will have an hard skin over the lower part; so need not lie so long as those which by accident may have been broken. But whenever a crown is taken from the fruit, or the suckers from old plants, they should be immediately divested of their bottom-leaves, so high as to allow depth for their planting; so that they may be thoroughly dry and healed in every part, lest, when they receive heat and moisture, they should perish, which often happens when this method is not pursued. If these suckers or crowns are taken off late in the autumn, or during the winter, or early in the spring, they should be laid in a dry place in the stove, for a fortnight or three weeks before they are planted; but in the summer-season they will be fit for planting in three or four days.

As to the earth in which these should be planted; if you have a rich good kitchen-garden mould, not too heavy, so as to detain the moisture too long, nor overlight and sandy, it will be very proper for them without any mixture: but where this is wanting, you should procure some fresh earth from a good pasture; which should be mixed with about a third part of rotten neats-dung, or the dung of an old Melon or Cucumber-bed, which

L

is

is not to be had, take the bottom of a well rotted Melon or Cucumber-bed; to every eight barrows of this put one of sea-sand; but should your loam be of a sandy texture, add thereto a third of fat marle: this compost

is well consumed. These should be mixed six or eight months at least before they are used; but if it be a year, it will be the better; and should be often turned, that their parts may be the better united, as also the clods well broken. This earth should not be screened very fine; for if you only clear it of the great stones, it will be better for the plants than when it is made too fine. You should always avoid mixing any sand with the earth, unless it be extremely stiff; and then it will be necessary to have it mixed at least six months or a year before it is used; and it must be frequently turned, that the sand may be incorporated in the earth, so as to divide its parts: but you should not put more than a sixth part of sand; for too much sand is very injurious to these plants.

In the summer-season, when the weather is warm, these plants must be frequently watered; but you should not give them large quantities at a time: you must also be very careful, that the moisture is not detained in the pots, by the holes being stopped; for that will soon destroy the plants. If the season is warm, they should be watered every other day; but in a cold season, twice a week will be often enough: and during the summer-season, you should once a week water them gently all over their leaves; which will wash the filth from off them, and thereby greatly promote the growth of the plants.

There are some persons who frequently shift these plants from pot to pot: but this is by no means to be practised by those who propose to have large well-flavoured fruit; for unless the pots be filled with the roots, by the time the plants begin to shew their fruit, they commonly produce small fruit, which have generally large crowns on them: so that the plants will not require to be new-potted oftener than twice in a season: the first time should be about the end of *April*, when
the

post succeeded so well, that it produced much larger fruit than any other, which induced me ever after to use a good deal of marle for these plants: the colour of the marle should be white, or of a yellowish cast, well dug,

the suckers and crowns of the former year's fruit (which remained all the winter in those pots in which they were first planted) should be shifted into larger pots; *i. e.* those which were in halfpenny or three-farthing pots, should be put into penny, or, at most, three-halfpenny pots, according to the size of the plants; for you must be very careful not to over-pot them; nothing being more prejudicial to these plants. The second time for shifting of them is, toward the latter end of *August*, or the beginning of *September*, when you should shift those plants which are of a proper size for fruiting the following spring, into two-penny pots, which are full large enough for any of these plants. At each of these times of shifting the plants, the bark-bed should be stirred up, and some new bark added, to raise the bed up to the height it was at first made; and when the pots are plunged again into the bark-bed, the plants should be watered gently all over their leaves, to wash off the filth, and to settle the earth to the roots of the plants. If the bark-bed be well stirred, and a quantity of good fresh bark added to the bed, at this latter shifting, it will be of great service to the plants; and they may remain in the tan until the beginning of *November*, or sometimes later, according to the mildness of the season; and will not require any fire before that time. During the winter-season, these plants will not require to be watered oftener than every third or fourth day, according as you find the earth in the pots to dry: nor should you give them too much at each time; for it is much better to give them a little water often, than to over-water them, especially at that season.

You must observe never to shift those plants which shew their fruit, into other pots; for if they are removed after the fruit appears, it will stop the growth, and thereby cause the fruit to be smaller, and retard its ri-

dug, and manured one year before using. Where the kitchen-garden mould is not to be had, take virgin earth ten inches deep below the sward, and no lower, leaving it with the sward, let them rot one year, and when fit for

pening; so that many times it will be *October* or *November* before the fruit is ripe: therefore you should be very careful to keep the plants in a vigorous growing state, from the first appearance of the fruit, because upon this depend the goodness and size of the fruit; for if they receive a check after this, the fruit is generally small and ill-tasted.

When you have cut off the fruit from the plants, whose kind you are desirous to propagate, you should trim the leaves, and plunge the pots into a moderate hot-bed, observing to refresh them frequently with water, which will cause them to put out suckers in plenty; so that a person may soon be supplied with plants enough of any of the kinds, who will but observe to keep the plants in health.

There is not any thing which can happen to these plants of a more dangerous nature, than to have them attacked by small white insects, which appear at first like a white mildew, but soon after have the appearance of lice: these attack both root and leaves at the same time; and, if they are not soon destroyed, will spread over a whole stove in a short time; and in a few weeks will entirely stop the growth of the plants, by sucking out the nutritious juice, so that the leaves will appear yellow and sickly, and have generally a great number of yellow transparent spots all over them. These insects, after they are fully grown, appear like bugs; and adhere so closely to the leaves, as not to be easily washed off, and seem as if they had no life in them. They were originally brought from *America* upon the plants which were imported from thence, and I believe they are the same insects which have destroyed the sugar-canes of late years in some of the *Leeward-Islands*. Since they have been in *England*, they have spread greatly in such stoves, where there has not been more than ordinary

for use, take one third of the well rotted dung, but should the ground be stiff, use sand in the same proportion, and a fourth part marle; but if your mould is free, you need not use any sand: Incorporate your dung and earth

nary care taken to destroy them. They have also attacked the Orange-trees in many gardens near *London*, and have done them incredible damage; but I do not find they will endure the cold of our climate in winter, so that they are never found on such plants as live in the open air. The only method I have yet been able to discover for destroying these insects, is, by washing the leaves, branches, and stems, of such branches as they attack, frequently with water, in which there has been a strong infusion of Tobacco-stalks, which I find will destroy the insects, and not prejudice the plants. But this method cannot be practised on the *Ananas* plants, because the insects will fasten themselves so low between the leaves, that it is impossible to come at them with a sponge to wash them off; so that if all those which appear to the sight were cleared off, they will soon be succeeded by a fresh supply from below; and the roots will be also equally infested at the same time. Therefore, where-ever these insects appear on the plants, the safest method will be, to take the plants out of the pots, and clear the earth from the roots; then prepare a large tub, which should be filled with water, in which there has been a strong infusion of tobacco-stalks; into this tub you should put the plants, placing some sticks cross the tub, to keep the plants immersed in the water. In this water they should remain twenty-four hours; then take them out, and with a sponge wash off all the insects from the leaves and roots, which may be easily effected when the insects are killed by the infusion; then cut off all the small fibres of roots, and dip the plants into a tub of fair water, washing them therein, which is the most effectual way to clear them from the insects. Then you should pot them in fresh earth, and having stirred up the bark-bed, and added some new tan

earth six months at least before you use them: this compost is to lie in an airy part of the garden, and the best exposed to the sun, which, after the three first months, must be turned over every fortnight, to imbibe the nitrous particles of the air.

I pro-

to give a fresh heat to the bed, the pots should be plunged again, observing to water them all over the leaves (as was before directed) and this should be frequently repeated during the summer-season; for I observe these insects always multiply much faster where the plants are kept dry, than in such places where the plants are duly watered, and kept in a growing state. And the same is also observed in *America*; for it is in long droughts that the insects make such destruction of the sugar-canes. And in those islands where they have had several very dry seasons of late, they have increased to such a degree, as to destroy the greatest part of the canes in the islands, rendering them not only unfit for sugar, but so poison the juice of the plant, as to disqualify it for making rum; so that many planters have been ruined by these insects.

As these insects are frequently brought over from *America* on the *Ananas* plants, which come from thence; those persons who procure these plants from thence, should look carefully over them when they receive them, to see they have none of these insects on them; for if they have, they will soon be propagated over all the plants in the stoves where these are placed: therefore, whenever they are observed, the plants should be soaked (as was before directed) before they are planted into pots.

It was formerly the common practice of most persons, who cultivated this fruit in *Europe*, to build dry stoves, in which they kept their plants in winter, placing the pots on scaffolds (after the manner in which orange-trees are placed in a green-house), and in the summer to keep them in hot-beds of tanners bark under frames: but this is found by late experience a bad method; for the glasses lying so near over the plants, there is not a sufficient

I proceed now to the culture of the Ananas or Pine-apple, the best kinds of which are :

1mo, *Pyramidal Pine-apple, with a yellow Flesh, or, Ananas aculeatus fructu pyramidato, carne aurea. Plumer. Ind. Occid. bist. plant.*

2do,

sufficient quantity of air in the bed to nourish the fruit, and give it that vinous flavour which good fruit always abounds with ; and when the glasses are closely shut down in the night, the vapours which arise from the fermentation of the tan, and the perspiration of the plants, are closely pent in, and being condensed against the glasses, fall in water on the plants.

Therefore, to remedy this inconvenience, it is now the practice of those persons who are desirous to propagate this fruit, to erect low stoves, with pits therein for the hot-bed, in the manner hereafter described : these are built in different ways, according to the fancy of the contriver. Some persons build them with upright glasses in front, about four feet high, and sloping glasses over these, which rise about six feet high, so that there is just height enough for persons to walk upright on the back-side of the bark-bed. Others make but one slope of glasses, from the top of the stove, down to the plate, which lies about six or eight inches above the bark-pit, in the front of this stove ; so that in this stove there is no walk made in the front between the bark-pit and the glasses ; but the inconveniency of watering the plants, as also of coming near those plants which are placed in the front of the stove, to clean them, has, in some measure, brought them into disesteem ; so that few persons do now build them, though the expence is much less than of the other kind of stoves. One of these stoves, about twenty-five feet long in the clear, with the pit for the tan reaching from end to end, and six feet and an half wide, will contain about an hundred plants ; so that whoever is desirous to have this fruit, may easily proportion their stove to the quantity of fruit which they are willing to have.

2do, *Olive-coloured Pine-apple, or, Ananas fructu ovato ex luteo virescente, carne lutea. Plum. bist.*

3tio, *The green Pine-apple, or, Ananas aculeatus fructu pyramidali ex viridi flavescente, or King-Pine.*

When

But it will be also necessary to have a bark-pit under a deep frame, in order to raise the young plants; for in this bed you should plunge the suckers, when they are taken from the old plants, as also the crowns which come from the fruit; so that this frame will be as a nursery to raise the young plants to supply the stove; but these plants should not remain in these frames longer than till the beginning of *November*, unless the frame have flues in it to warm the air (in the manner before described), which are very useful, as nurseries, to keep the young plants till they are of a proper size to produce fruit; so that you may keep these cooler than the stove; which may be every autumn filled only with bearing plants, whereby a much greater quantity of fruit may be annually produced, than can be where young and old plants must be crowded into the same stove: but where there are no conveniencies of this kind, the young plants, about the middle or latter end of *October*, must be removed into the stove, and being small, may be crowded in amongst the larger plants; for since they will not grow much during the winter-season, they may be placed very close together. The beginning of *March* you must remove these plants out into the hot-bed again, which should be prepared a fortnight before, that the tan may have acquired a proper heat: but you should be careful that the tan be not too hot; for that might scald the fibres of the plants, if they are suddenly plunged therein. Therefore if you find the bark too hot, you should not plunge the pots above two or three inches into the tan, letting them remain so until the heat of the tan is a little abated, when you should plunge the pots down to their rims in the bed. If the nights should continue cold after these plants are removed into the bed, you must carefully cover the glasses with mats; otherwise

When your stove has been well aired and made ready, as well as your compost, to receive your pines, they are to be brought in in *June*; as at that season these plants will not receive any injury from cold, and if brought by sea,

therwise by coming out of a warm stove, they may receive a sudden check, which will greatly retard their growth, which must be carefully avoided, because the sooner the plants are set growing in the spring, the more time they will have to gain strength, in order to produce large fruit the following season.

You should not plunge the pots too close together in this frame; but allow them a proper distance, that the lower part of the plants may encrease in bulk; for it is on this that the magnitude of the fruit depends; because when the plants are placed too close, they draw up very tall, but do not obtain strength; so that when they are taken out of the bed, the leaves are not able to support themselves; but all the outward long leaves will fall away, leaving the smaller middle leaves naked; and this sometimes will cause them to rot in the centre. You must also observe, when the sun is very warm, to raise the glasses of the hot-bed with stones, in order to let out the steam of the bed, and to admit fresh air; for one neglect of this kind, in a very hot day, may destroy all the plants, or at least so scald them, that they will not get over it in many months. It will be also very proper, in extreme hot weather, to shade the glasses in the middle of the day with mats; for the glasses, lying so near to the leaves of the plants, will occasion a prodigious heat at such times.

During the summer-season, the plants must be frequently watered; and in hot weather, they must have free air admitted to them every day, from ten o'clock till four; for, if they are kept too close, or too dry, they will receive a check in their growth, when the insects will immediately spread over them; for there are generally some of these insects on all the plants, which do not much injure the plants, while they are in a growing state; but whenever they are unhealthy, the
insects

sea, they had better be put between the decks, for their better protection.

The number of plants necessary to furnish the stove, with their different ages, are as follow, viz.

Six

insects multiply greatly, and contribute to their decay. There are some persons who regulate the heat of their stoves by thermometers in summer; but at that season this is unnecessary; for the outward air in hot weather is frequently greater than the *Ananas* heat marked on the thermometers; so that the heat of the stoves at that season will be much greater. The use of the thermometer is only in winter, during the time the fires are continued; by which it is easy to judge when to encrease or diminish the fires; for, at that season, the stoves should not be kept to a greater warmth than five or six divisions above *Ananas*, nor suffered to be more than as many divisions below it. In winter the plants must have less water, but they will require to have it repeated at least twice a week: when the plants are placed in the tan for the winter-season (which should be about the beginning of *October*), the tan-bed should be renewed, adding two-thirds of new tan, to one-third of the old. If this be well mixed, and the new tan is good, the bed will maintain a proper degree of warmth till *February*, at which time it will be proper to stir up the bed, and add a load or two of new tan, so as to raise the bed as much as it sunk since the autumn; this will give a fresh heat to the bed, and keep the plants growing; and, as the fruits will now begin to appear, it will be absolutely necessary to keep the plants in a growing state, otherwise the fruit will not be large; for if they receive any check at this time, it will greatly injure them.

In *April* it will be proper to stir up the tan again, and if the bed has sunk since the last stirring, it will be proper to add some fresh tan to it: this will renew the warmth of the bed, and forward the fruit. At this time it will be proper to shift the young plants, which are designed to produce fruit the following year: the tan-bed
into

Six dozen of large plants, which will come into fruit the year after you receive them.

Six dozen for fruiting the second year.

One hundred small crowns and suckers: these last to be taken in *August*.

into which these are plunged must be renewed, in order to forward the plants, that they may have strength enough by autumn, to produce good fruit; for in this is the principal care required.

Those plants which shew their fruit early in *February*, will ripen about *June*; some sorts are at least a month or five weeks longer in ripening their fruit than others, from the time of the appearance of the fruit: but the season in which the fruit is in greatest perfection, is from the beginning of *May* to the end of *September*, though in *March*, *April*, and *October*, I have frequently eaten this fruit in pretty good perfection; but then the plants have been in perfect health, otherwise they seldom are well flavoured.

The method of judging when the fruit is ripe, is by the smell, and from observation; for as the several sorts differ from each other in the colour of their fruit, that will not be any direction when to cut them, nor should they remain so long as to become soft to the touch before they are cut; for then they become flat and dead, as they do also when they are cut long before they are eaten: therefore the surest way to have this fruit in perfection, is to cut it the same day it is eaten; but it must be early in the morning, before the sun has heated the fruit, observing to cut the stalk as long to the fruit as possible, and lay it in a cool, but dry place, preserving the stalk and crown to it, until it is eaten.

That sort with green fruit, if suffered to ripen well, is of an olive-colour; but there are some persons who cut them before they are ripe, when they are not fit to be eaten, for no other reason, but to have them green: and although many persons have much recommended this sort for its excellent flavour, yet I think the sugar-loaf sort is to be preferred to it.

This

This number will be sufficient to furnish your stove to give annually one hundred good fruit.

On the arrival of your plants in *June*, as has already been mentioned, unpot them, taking away most of the earth from about their roots, and such fibres as you find injured or any way decayed; then with your compost, plant them into pots of the same size in which they arrived, observing to cut off the extremities of all such leaves as are withered or injured, but no other, upon any account; watering them, to settle the earth about them; then set them in the tan, which should you find too hot, put them but half-pot deep, and in a fortnight after, you may sink them to their brims, gently watering them three times a week, with such water as has been kept in the stove for twenty-four hours, that it may have the same consistency of heat, as the air in the stove, and never to use any other water than such as has undergone some preparation, either for the stove, greenhouse, or hot-bed; and observe that water taken from a pond that is well exposed to the sun is the best, provided not fed with hard spring, which is a great enemy to vegetation: shade your plants for a month in hot sunshine, until you perceive them growing. On sunshiny days the glasses should be raised to give them air, when they may be watered all over their leaves, to cleanse them from any filth; observing that the water does not settle for any time in the tube at their hearts, which if it does, will injure them very much.

About the end of *August* it will be proper to look for the biggest plants, I mean such from which you expect fruit the succeeding year; and if they have filled the pots into which they were planted on their arrival, it will be now necessary to remove them into larger, (two-penny ones, at least) having first observed, that their roots, and the earth about them, are wholesome and good; if otherwise, take such earth and such roots away, and give them new earth, of the compost already directed. Stir up the bark in the bed, and add some fresh to it, this will renew the heat when they are to be set into it again, there to remain until *Michaelmas*, giving water, air, and shading for three weeks after this transplanting, as has been directed.

My

My intention in transplanting the fruiting plants at this season is, that they may fill their pots by *Michaelmas*, when they are put into the stove for fruiting; so that when they come into the stove in this state, the new heat will occasion them to shew their fruit by the beginning of *January*, to ripen in *June* and *July*, which are far preferable to the later fruit. As for the small plants which are not to fruit until the second year, I would not chuse to unpot them until *Michaelmas*; for were they to have larger pots given them earlier, it might occasion them to shew fruit too soon, and out of season; to prevent which is a most material part of the management of them: therefore keep your plants always in a growing state, not to be stopped by too much cold, or too much heat, otherwise they will shew untimely fruit.

A fortnight before *Michaelmas*, provide a good quantity of new tan, laying it in heaps, and as soon as the water has ran off, put it into the pit, raising the same a foot higher than the walk about it; I mean, the bark-pit of No. 5. where you are to set your largest fruiting plants. And here you may try an experiment which succeeded very well with me.

When I brought these plants into the stove, I took twelve of them, and watering them well the night before, raised them out of the pots, with their earth, and made pits in the tan, (which was in a good temperature) one foot and a half diameter, and a foot deep; in these I set my plants, at thirty inches distance every way, filling up the vacancies with the same sort of earth, and covered the surface with a little old tan, that it might not dry too soon. These plants were set in one end of the pit, where the tan was raised near two feet higher than in any other part of the pit; the plants in the pots were set at the distance of five feet from them, that they might not be disturbed, when it should be necessary to renew the tan in *March*, for the other pines. These Pines in the free tan, I observed, fruited sooner than those in the pots, were sooner ripe, and their fruit larger, and better flavoured. About *Christmas*, *January*, *February*, and *March*, the air of the house should be kept up to five degrees above the Ana-

nas

nas heat, watering the plants gently and often, to encourage their fruit to swell, this in a particular manner is to be attended to when they are in blossom; as then a good hear, and a plenty of water, swells the fruit to a desirable size. By the beginning of *March*, renew the tan in the pits where the fruiterers are in pots, but never unpot any plants after they have shewn their fruit, otherwise it will be small, and late in ripening; be very observant to keep up a good heat, and to give plenty of water, on the first appearance of fruit, as this not only gives them size, but flavour too. By the beginning of *March* I would set all the young plants, and transplant those which are not to fruit into the summer brick frames, first trimming their roots, earthing, and new potting them, and giving new tan to the bed: should this be delayed longer than the first week in *March*, they will very probably fly up into small stunted fruit: this method of transplanting them, and at this season, is the best expedient yet known to prevent these untimely productions, together with shading, giving due air, and gently watering them: Nor would I encourage the cutting off many of their leaves, though bruised or otherwise hurt, for the plants cannot be expected to thrive, that are deprived of the means of perspiration and respiration, of which use the leaves are to them; besides, much cutting occasions much bleeding, which weakens the Pines. But should it be found necessary to take off some old or bruised leaves with your knife, split them, when they will come off very easily. Observe when their leaves are of a florid green colour on the inside, and of a good ash-colour on the outside, the leaves well expanded, not drawn in, or hanging down, they are then in good health. I have already recommended a botanical thermometer, which should be placed at a distance from the fire, and when the spirit keeps up to the height you desire, and kept from the sun's rays, then it is certain that the heat works well in the furnace and the flues. Observe in warm weather, that the thermometer is to be removed from the stove, and placed in a cool place, otherwise the spirit will burst the tube.

As soon as you perceive your Pines spotting on their leaves,

leaves, remove the specks with a pin, on the old plants you will observe a small insect, which you must also take away; but should they be numerous, wash the plants with a sponge and an infusion of tobacco-stalks; this will quite destroy the vermin, without injuring the plants, which, if not timely prevented, might ruin the stove; but should this not have the desired effect, you must take the plants out of the pots, clearing them of their earth, steep them in the infusion for twenty-four hours, then they are to be cleaned with a sponge, their fibres shortened, and rinsed in fair water, when they are to be repotted in new compost, give them new bark, shade them, and give them gentle waterings, and they will recover in a few weeks. Those plants which are planted out of the pots into the kept in them. When the fruit is in blossom, you must tan, do not require so much water as those do which are be sure to keep a good heat in the stove, and at night to cover the glasses with thin broad covers, which should be so contrived as to slide in grooves over them: If the heat of the bark declines, add some new tan to the fruiters in the pots, and if the same happens to the plants in the tan, take away the old tan carefully with your hand, until you come at their roots, but not to disturb them, filling up the place with new; this new bark will bring them on to ripen kindly.

From an accident I discovered, that setting the plant in the free bark, with its ball of earth, gave the ripest and best flavoured fruits; but this is not to be done, until the plant first shews its fruit: therefore it has ever since been my practice, when I observed my largest plants fruiting, I made up a new tan-bed for them, and when in a good temperature, I took them out of their pots, watering them the evening before, that the earth should adhere to their fibres, and planted them in the tan; where, managing them with care, they answered my fondest expectations.

At this season give your fruiting plants a good watering over their leaves; nor is there any danger of the water's settling in their hearts, as the space is filled with the fruit, which in young plants is an empty tube, reaching to their hearts. As soon as the fruit comes fast forward, and swelling, there will appear many suckers below the fruit,

fruit, and amongst the leaves: these are not to be taken off, until they are turned knobby at bottom; and are not to be planted, until their wounds, occasioned by taking them off from the mother plants, are not only healed, but perfectly dry; otherwise they will rot.

By this good management, your Pines will be ripe by the end of *June*, or in *July*, which you will perceive by the fruits turning yellow, and emitting a fine scent, and the knobs of the fruit yielding to the pressure of the finger. Beside these signs of ripeness, that of their emitting a strong and poignant smell is not the least. These signs are particularly to be attended to, for should the fruit become too ripe, they turn most insipidly sweet, and have no more taste than a sweet Lemon. The fruit are to be cut about eight in the forenoon, with four inches of stalk to them; and when they are to be eaten, hold the fruit or its stalk in one hand, then with the other twist off the crown, when it will come off like a ball out of a socket, which is to be returned to the gardener; the fruit is to be sliced upon a plate, leaving the rind on, for the better preserving the juice, not suffering one slice to lie on another, as their rich juice would make them stick together. When these fruits are to be sent any distance, they should be cut a day or two before they are quite ripe, with a good part of the stalk, and leaving the crown on, to be well covered in paper, and secured in a box for carriage.

As soon as the crowns and suckers are sufficiently dry, and ready for planting, take halfpenny or farthing pots, according to the size of the bottom of the plants, covering the holes of the pots with concave oyster-shells, that the water may pass off, and not stagnate; plant them in these pots filled with the compost directed for the old plants, water them gently, pressing the earth to their roots, then sink their pots in the tan-beds up to their brims, shading them from hot sunshine, observing to continue to give them air and gentle waterings, until you perceive them growing, when you may admit the sun, air, and water, in the same manner as directed for the old plants. If they have filled the pots they were at first planted in by *Michaelmas*, or the beginning of *September*, I would then take them

them out, and plant them in penny pots, and renew the tan in the frame; here they may continue until the beginning of *November*, to be afterwards brought into the stove, and placed in pit, No. 6. or continued in the flued frame all winter; but be sure to take all the crown plants of last year out of the stove by the first of *March*; when you are to trim their roots, to give them larger sized pots and new tan; this will in some measure prevent them from flying up into untimely and stunted fruit, this will not thoroughly effect it unless every opportunity is taken of admitting fresh air, when you may promise yourself fine fruit the succeeding year. About the beginning of *July* will be the most fit season to take into your care such plants as are to fruit the ensuing season. Such plants as you have taken good fruit from, and are desirous to propagate their suckers, re-pot them, and sink them into new tan; and if you choose suckers from old fruiting plants that are in pots, earth them anew.

The fuel best suited to these stoves are coal and peat, as wood fires are too hasty and violent. Those plants which were vigorous in their fruit at their first appearance, I took from them the bottom of their pots, when I gave them new tan in *March* or *April*, preserving the sides of the pots as much as was in my power. By this method I had their fruit very large, as well as when I planted them in the tan, as already directed.

That the stove may have some other curious plants besides the Pines, I would propose that the top of the second flue should have an edging of bricks built upon both sides of its upper part, one brick thick, and two deep, but not to be covered; but between these bricks, which must be set edge-ways, lay in four inches of sand, which will become very hot, so that the sand will be like what chymists call a *Balneum Mariæ*. The use of this sand is to receive pots, in which are planted the *West* and *East-Indian* Melon-thistles, the first called botanically *Melocactus*, or *Cactus*, and the other *Echinomelocactus*; their varieties, with their flowers and fruit, will make a most beautiful and singular appearance.

I would also have erected in the stove, over the fire-place, a shelf of boards, and so large, as to hold three or four pots of the Torch-thistle, called, *Cereus*

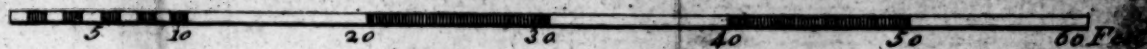
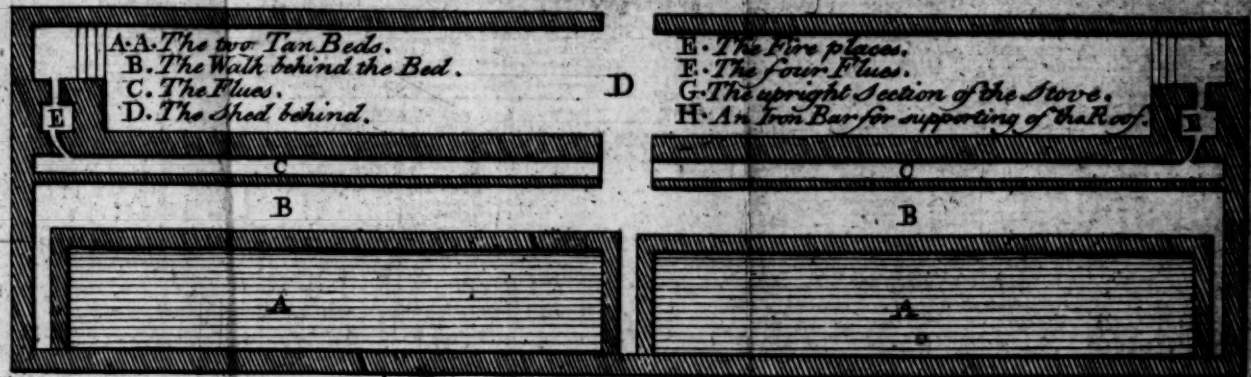
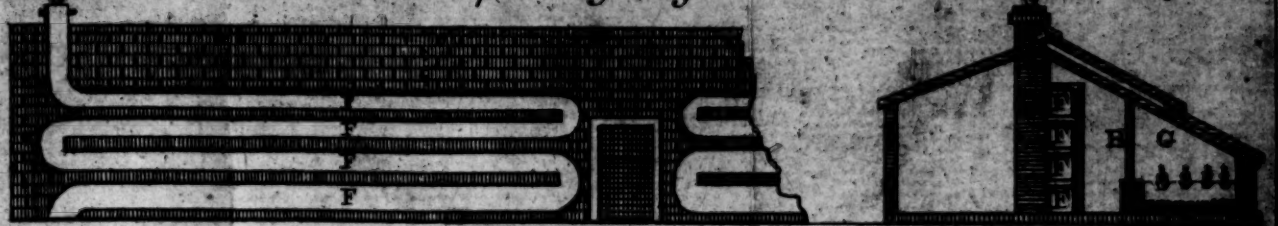
minor scandens trigonus articulatus, fructu suavissimo, lesser three-cornered Torch-thistle, with a most delicious fruit, commonly called in Barbadoes, *The true prickly Pear*, which fruit being as large as a Bergamot Pear, is as fine as the Pine-apple, of which I ripened three in one year. Upon the other end of the stove may be a shelf of the same dimensions, for holding pots of another sort of Torch-thistles, called, *The Cereus minor scandens polygonus articulatus*, or lesser many-cornered Torch-thistle, it produces a large odoriferous flower, which opens about seven in the evening, and is quite gone by eight o'clock the next morning. The flowers of this plant, for odour and largeness, surpass any flower yet known.

These Torch-thistles shoot out very long branches, which run along the walls and ceilings of the stoves, upon which, if you lay some rough lime plaister, they will, like ivy, fasten their roots into, and prosper the better for it; both these and all the kinds of Melon-thistles thrive best when they are planted in pretty coarse sand, gravel, and lime-rubbish, to be sparingly watered, except in very hot weather. The *Cereuses* are propagated by cuttings, which should be allowed to wither for fourteen days before they are planted, and may then with their pots be sunk into a good tan-bed, to hasten their rooting; this work should be performed in June, that they may make good shoots before winter.

The Melon-thistle is propagated by seeds, (especially the *Echinomelocactus*) or suckers, when the caps of the *Melocactuses* must be pinched, in order to send them out, which are to be planted in the same soil as the *Cereuses* or Torch-thistles. It is certain, that no plant amongst the vegetable tribe, hath such a strange and odd appearance, and which more merits an uncommon regard from the curious gardener.

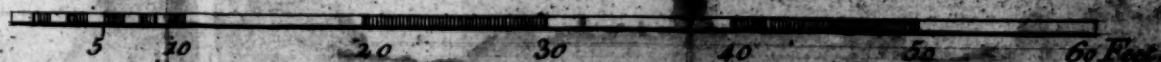
The Stove for the young Plants.

Page 121.



The Stove for ripening the Fruit.

Page 122.



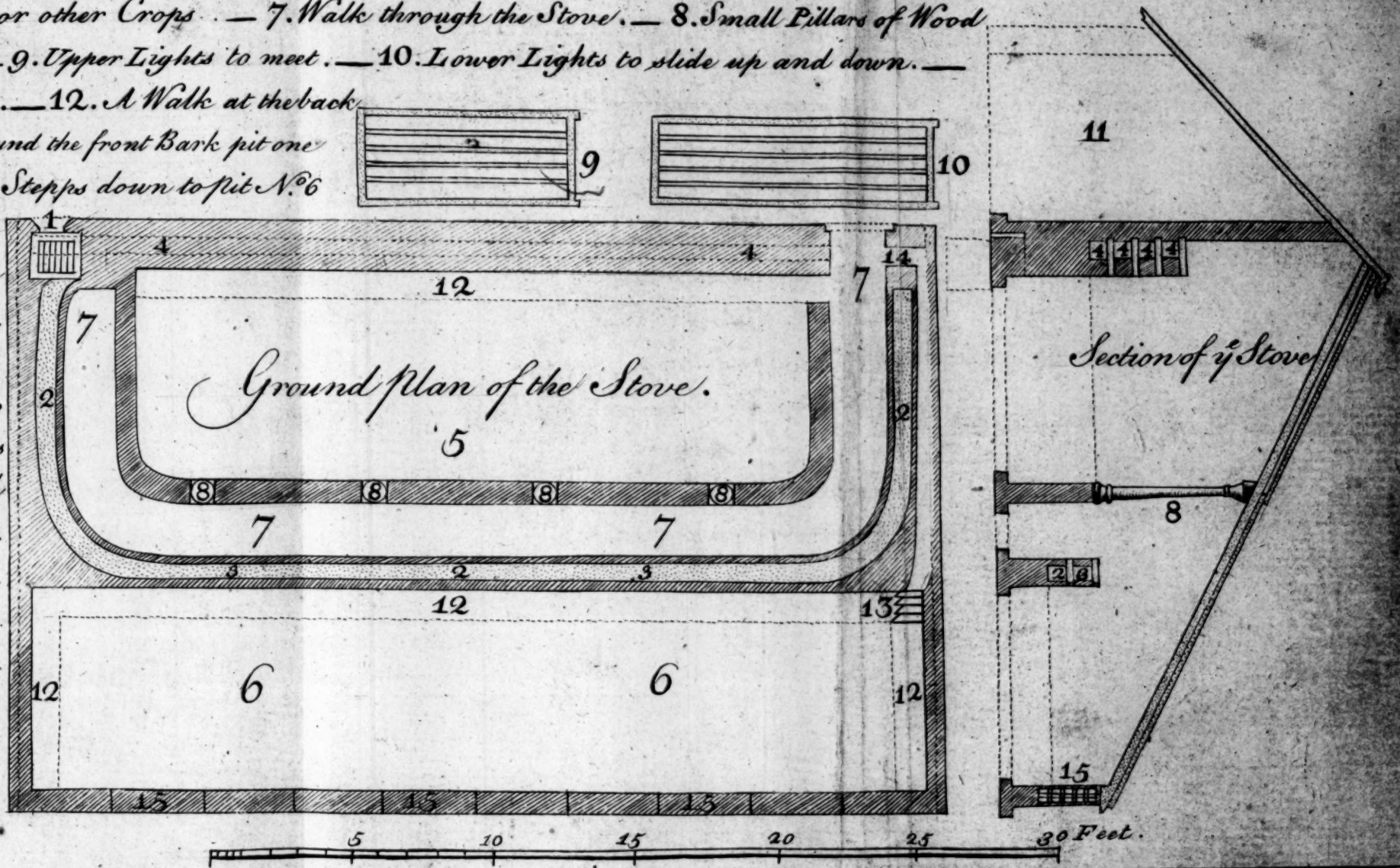
Explanation.

N^o 1. Fire place and Ash-hole. — 2. First Flue. — 3. Second Flue. — 4. Flues in the back Wall after the Second has past over the fire Place. — 5. Bark Pit for fruiting Plants. — 6. Bark Pit for young Plants or other Crops. — 7. Walk through the Stove. — 8. Small Pillars of Wood to support the Roof. — 9. Upper Lights to meet. — 10. Lower Lights to slide up and down. —

11. Shade at discretion. — 12. A Walk at the back of the Bark bed and round the front Bark pit one foot in breadth. — 13. Steps down to pit N^o 6 and the Walk. —

14. Passage into the Walk round the bed N^o 6. —

15. Windows all along the front of the Stove two feet high and as broad as the Sliding Glasses, which Windows have cross bars.





Mr. Adam Taylor having lately published a Treatise on the rearing of the Pine-apple in Frames, by the help of Dung only, we shall introduce it here; not so much from a Desire to give Variety, as that he asserts the Fruit is in much bigger Perfection than from the Stove. — We shall take up this Writer immediately with his first Directions, having already described the Fruits, and pointed out the Kinds that suit best to our Clime.

BEfore I proceed to the necessary management of the plants, it may be proper to treat of the construction of our new frame, which very much resembles that which Sir James Justice directs for ripening fruits by the help of dung only, in inclosures of glazed frames, and strong boards.

First, sink the ground for your foundation eighteen inches, thirteen feet six inches in length, and seven feet six inches wide, to be paved with brick or stone, and inclosed with a nine-inch wall, three feet and a half high, or a wooden frame of the same height; observing that the front of your frame is to face the south. A glazed frame two feet six inches high, made in sashes, for sliding backward and forward, is to be set upon the brick-work in front, for the readier giving air and water to the plants; the ends also are to be glazed, and to open for the same purpose, and to have a rise from the front to the back, of one foot six inches. The back part of the frame is to be of deal board an inch thick, to rise four feet above the brick-work, the whole to be covered with glazed sashes like the stove-frame, and constructed in the same manner, to carry off the steam. This glazed roof is to be occasionally covered with a sail-cloth fastened on a roll, for the convenience of letting down and taking up.

Notwithstanding I have directed the pit to be enclosed with brick-work, I would recommend its being of entire wood-work, that is, boards nailed to two upright posts, as this would give an opportunity of keeping up the heat, by a lining of horse-dung being laid against the back of the frame, to be raised or lowered according to the heat required.

For the better perfecting of this operation, I would recommend another pit to be prepared, of twenty feet in length, and six in breadth; to be separated in the middle with boards, so that when the heat of one pit is going off, the other may be made ready.

This frame will be necessary to receive your plants from the first, when the heat fails; and in one end of the double frame you may raise your crowns and suckers for the fruiting frame: this contrivance will render the work easy, and will be more certain than raising the crowns or suckers in the Cucumber or Melon frames.

This residuary pit then, being full twelve feet in length, and six feet in breadth, will hold thirty-two fruiting plants, (that is) four rows, and eight in a row; and may be made larger or smaller, according to the number of fruiting plants which you intend to have.

Having said as much as is necessary, concerning the repositories adapted to your fruiting plants, it will be proper to give some directions for preparing the pit which is destined to receive them.

First, provide yourself with such a quantity of dung, as will be sufficient to fill your pit within fourteen inches of the top of the brick-work, when settled. But this dung, before it is put into the pit, should be well worked together, in the same manner as is practised for your Cucumber-beds, when it will heat more kindly and with more regularity, than when it is thrown in without mixing. This done, provide a sufficient quantity of tanner's bark to plunge your pots in. But if your situation is such, that tanner's bark cannot conveniently be had, you must get saw-dust in the place of it, which answers the same purpose: but then its heat will abate
much

much sooner than the other. I have for many years brought Pine-apples to perfection with horse-dung only, but then I have been obliged to shift them oftener, than when tan was used. I have also made use of tan for the pit, and horse-dung for the lining on the outside of the back part of my fruiting frame, with admirable success, the fruit being vastly superior, both for flavour and magnitude, to those which are raised by the stove.

Those who are newly beginning to raise a pinery with small plants, crowns or suckers, have no need of any other direction, nor can they raise them to perfection any way so well as by the method just directed. But when they have crowns and suckers to succeed the first, it will be necessary to have another frame, constructed in the following manner.

The crowns and suckers are two years before they perfect their fruit; therefore they will annually require several fresh beds of dung, covered with tan, to shift the pots into. This frame then should be six feet wide. The length must be in proportion to the fruiting-frame, and made in the same manner as those for Cucumbers, but stronger. It must rise three feet and six inches in the back, and two feet six inches in the front, to be covered with lights to slide, as has been already directed, and to be well situated in respect to the sun, whose influence may be much assisted by a front glass, to rise fifteen inches. This frame, which is intended for raising the suckers, crowns, &c. may be contrived of two or three lengths, according to the number of plants which you intend to place in it.

The tan which ferments best is that of a moderate size, which is usually wet, when first brought into the garden, therefore must be thinly spread to dry for a day or two, when the cakes are to be separated, and the whole cast in a heap under cover to ferment.

But if the plants are to be reared by horse-dung only, it must not be put into the pit wet; particularly in the winter, when it might occasion a considerable damp, which would be detrimental to the plants.

Having now directed every thing necessary in regard to the pit, except the compost, the following is that I recommend, of which you should have a provision for years, as age much improves it.

Take one load of mould from under the turf of a good pasture, to which, should it be very light, add a fourth of good yellow loam: but, if it is sufficiently loamy, mix with it two or three bushels of sea-sand. Then take a fourth of dung from a cow-yard; but, if not to be had, take the same quantity of good rotten dung from an old Cucumber or Melon-bed. Mix these well together, turning the whole three or four times, that it may thoroughly imbibe the air. Let all the large clods be well broken, but not sifted or screened, as is the practice with some.

The particular next to be considered in this article, is, the preparation of the crowns and suckers for planting, which has already been given so fully by Sir *James Justice*, and Mr. *Miller*, in pages 148, and 159, that we shall not repeat it here, but proceed to the care of the Pine in these new frames.

The crowns and suckers are to be planted in small pots of a halfpenny a-piece: but if any of them are larger than common, they will require pots somewhat larger; which, being filled with the compost, previously place an oyster-shell over the hole at the bottom of each pot, that the water pass off freely; for without this precaution the plants would rot. They must not be planted too deep, lest the earth should get between their leaves, which would be detrimental to them: neither should they be planted too shallow; as they would be liable to be displaced by watering; so that discretion must be your guide.

The plants being potted, they must be plunged up to the rim in the bed of your nursery-frame, observing that the heat is moderate. The instrument for this purpose should be a crooked fork fixed in a short handle. The pots should be arranged according to their heights, placing the smallest in front; for, in this position, the whole will the more easily receive the benefit of the sun. You should then give them a gentle watering,
and,

and, if the weather be very hot, shade them in the heat of the day, until they are firmly rooted; this shading will be very necessary, so long as the weather continues very warm; otherwise the heat of the sun thro' the glasses would scorch the leaves of the plants, and burn the mould, so as to deprive it of its vegetative quality. When they have struck root, they should have air given them every day, which is to be encreased, when the days are warm, and the wind gentle. For if they are kept too close, and drawn up weak, they will suffer greatly in the winter. The plants in this frame will require but little watering in the winter, but when the frosty weather sets in, and the heat of your bed abates, it will then be necessary to add a lining of horse-dung, in the same manner that you renew the heat in your Cucumber-beds.

With this management, two good beds will be sufficient to carry you through the winter, observing to cover the outside linings with straw or fern, for the better retention of the heat in the dung. This will also prevent the frost from penetrating your frame, if raised sufficiently high. It is also requisite to have mats, or some other covering, to hinder the frost from getting through your lights; and if a great steam should rise from the bed, it will be necessary to give them a little air, by tilting up the lights a little.

The greatest care that these plants require, is, to be preserved from frost, and too much wet in winter. Above all things, be not too forward in promoting their growth at this season, as not any thing can be more prejudicial than their shooting too fast; for should they appear with long leaves, and white at the heart, (the consequences of a forward growth in winter,) it is over with them, as they will never acquire the size or flavour they should have.

Be careful then not to make your beds too strong from the middle of *September* to the middle of *March*. For it is no matter how little the plants grow during the winter, it is sufficient they are preserved from rotting, and of a good colour.

In *March* they are to be more particularly attended to, from the great changeableness of the weather in this

month, which is frequently severe, so as to require all your art to protect your plants from cold, and sometimes from too hot a sun, they must be gradually admitted both to air and warmth.

About the beginning of *April* (a few days sooner or later, as the season may permit) it will be proper to shift your young plants into somewhat larger pots, observing the same precaution respecting the oyster-shells, as before. Your pots and mould being ready, turn out the young plants gently, and be careful to keep the earth around their roots. Then put a little fresh mould into the bottom of the pot, and, having placed your plant upon it, fill up all the hollow parts with the same. While you are about this work, examine their roots very particularly, and, if any seem perished, the old mould must be cleared away, and the decayed part cut off. All decayed leaves must be stripped off, (not cut) at the same time. This will make room for the new fibres to strike freely, and observe that the fresh earth, with which you fill the pots, be not too wet. The plants being thus shifted, you should have a fresh bed ready to receive them, made with dung and covered with tan, as before directed. In this bed, place the plants in order, the tallest at the back part of the frame, and the lowest in front.

As soon as the plants receive the benefit of the heat of this new bed, and the weather is mild, it will be proper to water them all over the tops. This will wash away the filth, settle the earth to the plants, and greatly promote their growth. Continue to cover them lightly at nights, and to give them air in the day-time, when the weather permits. For it is with these, as with the animal world: if they are too closely confined, they will become tender and feeble, and the less capable of producing fruit in perfection. In the space of three or four weeks the heat of this bed will be considerably abated. It must then be renewed by a lining of fresh dung. For though it does not signify how little your plants grow in the winter, so they do but stir at all, yet it must be a principal part of your care to encourage and forward the growth of them, from the month of

April

April or September; which is their natural growing season; and as warm showers are not uncommon in the months of *April* and *May*, the glasses may be taken quite off, that the plants may have the benefit of them; only be careful to do this with discretion, for they are not to be too much indulged in this, unless the heat of your bed be strong. As soon as the shower is over, put on the lights again, shutting them close; remembering always to let them be shaded after every watering, more especially if the sun should shine warm, as this will occasion a fine dew to appear upon the leaves of the plants, which will be very serviceable to them.

The water that is given them occasionally from *September* to *June*, must be in the morning, and sparingly; and during the hot months of *June*, *July*, and *August*, in the evenings; that the heat of the sun may have no opportunity of drying them before they shall have received the intended benefit of the watering. The water made use of on these occasions should be soft; and rain-water, which is the softest, should be preserved for this purpose: and have a degree of warmth given it, proportioned to the air within the frame, to be sprinkled from a fine-nosed pot.

About the middle of *July*, is the proper season for shifting your succession plants again into pots of a larger size. In the execution of this work, after you have turned out your plants, it will be necessary to take off some of the outside mould, and trim the outside roots. I would be understood to mean those roots only, which have reached the sides of the pot. Put some fresh mould at the bottom of the new pot, to raise your plant to the proper height, then fill the pot with the earth, which you have prepared for that purpose. These pots are then to be plunged into your fresh bed of dung covered with tan. Be sure to let them have plenty of room, to give them sometimes gentle refreshments of water, and to let them have a due proportion of fresh air. This will make your plants strong, and dispose them to produce good fruit the following year. But if they are kept too close at this season, they will be drawn up weak, and sometimes
there

there will be danger of their being driven unseasonably into fruit in the winter.

Towards the end of *August*, when the nights begin to be cold, the glasses must be shut down close. But then it will be necessary to let them have some air in the day time, when proper opportunities shall offer. And be particularly careful not to let them have too much water at this time.

About the end of *September* your succession plants will be nearly full grown. It will be then expedient for you with all diligence to get ready the pit in the fruiting-frame for their reception. If for this purpose you make use of dung covered with tan, it must be put into the pit a few days before you plunge your pots into it; but if you intend to fill it entirely with tan, it must be put in a full week before you venture your plants in it. In that time the bed will have obtained the due degree of heat by fermentation, and will be rendered fit for the reception of them. In plunging these plants, be still advised to place them with order and regularity, which will greatly add to the beauty of them when they come to be ripe. As soon as the bed shall have imparted a proper warmth to the mould in the pots, your next business will be to water them lightly over their leaves, which will be a considerable refreshment to them, and settle the mould to their roots.

If this bed be made entirely of tan, the plants may remain in it till the middle of *February*; but if it be composed of dung covered with tan, they will require another fresh bed about the middle of *December*. Then to have the two pits with the moveable frame in readiness, will be very convenient for re-plunging your pots without their receiving any check.

You must be careful to cover the frame with a sail-cloth during the winter season, as you have already been directed. Another caution, laid before you in the beginning of this treatise, is, that as soon as you perceive that the heat of the dung or tan is abated, you begin to line the back part of the frame on the outside with dung. This lining must be laid three or four feet wide at the bottom, and made sloping to the top, that

that the wet may pass off well without soaking into the frame. Neither should it be raised to its full height at first, but by little at a time, as the frosts encrease, until it comes to be as high as the back part of the frame itself. By thus adding fresh dung to the former, at convenient distances of time, as the severity of the weather may require, it will maintain its heat much longer than if the whole quantity was to be heaped up at once, and will strike a nourishing heat through the back part of the frame. This is much preferable to the heat which is communicated by fire, and the plants thus managed require less water during the winter season, than those which are raised by means of the stove.

For the better convenience of watering the plants in this frame, you should be furnished with a tin pipe about five feet in length. By means of this you will be enabled to reach the pots which are placed at the back part of the frame, without breaking or injuring the leaves of those which stand in front. The large end of this pipe should be three inches and a half in diameter, and half an inch at the small end, which should be turned in the same manner as the bole of a common tobacco pipe, that the water may gradually run upon them. This pipe is preferable for use in the winter season to any watering-pot that can be made for the purpose.

Having by these directions preserved your plants to the middle of *February*, they should now be shifted into pots, about nine inches deep, and ten inches in diameter. This is the proper size of the pots in which they should be planted to produce fruit. But observe that, at this time of shifting them, no mould must be taken off, nor must any of the roots be disturbed at all, but they must immediately be set in with care, filling the pots with fresh mould, as before directed.

If your bed be made entirely of tan, you should now add a little fresh tan to it, mixing the old and the new well together, before you plunge your pots in it. But if the pit be filled with dung, the spare pit must be prepared to receive them, as is before directed;
and

and the lining must be taken from the back part of the frame: and when the pots are plunged, you must move the frame over them again, and then begin to make a fresh lining at the back part, agreeable to the directions just given.

If these plants are carefully managed in this manner, during the winter, they will begin to shew their fruit about the middle of *March*. And if any of them should happen to shew fruit earlier, they must not be shifted after the first appearance of it. For this cannot be done without checking them greatly; the natural consequence of which will be, that the fruit will be long in ripening, and at last small, and but indifferently flavoured.

When the fruit appears in the hearts of these plants, you should be careful not to water them over the leaves, more especially when they are in bloom. For it will prevent several of their tubercles from swelling: and this will render the fruit unsightly. But when the blossoms are gone off, you may without danger venture to water them all over. As the fruit advances in magnitude, be sure to keep a good heat, by applying fresh dung to the back part of the frame. Let this be your principal regard; for the beauty, size, and exquisite flavour of the Pine-apple chiefly depend upon the freedom of its growth after the fruit appears. Encourage this therefore by frequent refreshments of water, and by giving them air as often as the weather will permit.

You will easily perceive when the fruit is ripe, by the beautiful yellowness of its colour, and the grateful perfume of its effluvia. It should be cut in the morning before the sun shines upon it, and laid in a cool place. The suckers should now be taken off, if they appear brown at the bottom, and the leaves trimmed off from the mother plant, which should be plunged into a moderate hot-bed. If you are careful to refresh these frequently with water, they will produce more suckers; so that you may very soon have plenty of them, if you are disposed to preserve the old stools. Some persons indeed raise objections against these suckers that are produced near the roots, and call them contemptuously *under-ground*

ground suckers. But I have experienced them to be as good, and have produced as fine fruit from them, as from any other plants.

Towards the end of *September* your fruiting-frame will be almost clear. Therefore, if you made use of tan only for the pit, it should now be screened, that the smaller parts of it may be separated from the greater, those however have both of them their respective uses. The larger should be spread of an equal thickness all over the pit. You should then have a sufficient quantity of new tan to raise the bed with to its proper height, mixing them well together. This, with the lining, will maintain a moderate heat for five or six months. The smaller parts will be serviceable to cover the dung-beds with, wherein you are to raise your succession plants.

Having gone through the whole process of the Pine-apple, from the management of the crowns and suckers to the ripening of the fruit; it remains that proper notice be taken of the white insects which are found about the Pine, and which are always injurious, if but a little neglected, and frequently destructive to the plants; but as their extirpation has been sufficiently directed by Sir *James Justice*, as well as Mr. *Miller*, it will be unnecessary to give any more on this head.



Directions for making Plantations of Strawberries.

THE only sorts of Strawberries worth cultivating in this country, are, The *Virginian* or Scarlet, the Globe Hautboy, and the Greenish White or Pine-apple Strawberry, so called from the resemblance it has to the taste of the Pine-apple. The culture of these is generally the same. Whenever you design to make plantations of them, let the soil be a good fresh loam, to be very well trenched in *August*, and laid up in ridges in winter, to be meliorated by the snow and frost, turning it over the spring following. Should the ground be in good heart, do not
dung

dung it, as that would encourage the plants to send out too many suckers and runners, to have good fruit. So soon as the plants have done fruiting, from which you are to take your off-sets, lay out your ground in beds five feet broad, with alleys one foot and a half, in order to have free access to dress the beds and plants, observing to take no other than single heads from the mothers (for runners will only multiply themselves). The *Virginian* kind are to be planted fourteen inches distant every way, the Hautboys two feet, and the Pine-strawberry at near the same distance: they are to be set in pits, and well watered (if dry weather) and kept moderately so, until you perceive they have struck root: keep them clear from weeds. By the beginning of *October* they will have made good roots, and will shew well this season; clean them again from weeds and runners, laying up the earth in the alleys, two inches deep, where it is to lie a fortnight, and then to be spread with a spade between the plants, and at the same time cut off their long-shanked leaves; this is called winter-dressing. In *April* clear them again of all weeds and runners, and dress the beds. When they are in bloom, if the season is dry, water them plentifully, to make them set their fruit well, otherwise they will not; and be sure at this season to take off all runners, by which means you will have good crops.—These beds are to be removed every three years: and if the ground is dry when you water the Hautboy, observe to lay some wheat-straw between the plants, to receive the bunches of fruit; this will keep the fruit dry, and the ground moist, which, whilst the plants are in bloom, and for some time after, will be of great service to them.

A Catalogue in Alphabetical Order, of such Plants and Roots as are necessary for the Kitchen-Garden, pointing out the Seasons for planting or sowing them, with other Particulars: In the same Order will be found the Directions for the Management of those most in Use (dismembered of every Thing tedious and unnecessary) and other Things worthy to be attended to, for having the Crops not only early, but in high Perfection.

ANGELICA, seed, in *March*, on a rich soil, to be transplanted, open to the sun.

Anise, seed, in *March*, rich soil, warm and shady.

Artichokes, off-sets, in *March*, on ground well prepared the preceding *October*.

Asparagus, Dutch, seed, in *April* or *May*, produced from plants that had never been cut.

——, *Gravesend*, the same.

Balm, Common, seed and slips, planted in *March*.

——, of *Gilead*, seed, in pots on hot-beds, in *March* and *June*, transplanted into a good rich soil.

Basil, Bush, seed, *April* or *May*, on hot-beds, to be transplanted.

——, *Sweet*, the same.

Beans, early *Lisbon*, seed, *October* and *February*, full in the sun, a rich soil.

——, early *Mazagan*, seed, *October* and *November*, the same.

——, green *Genoa*, seed, *April* and *May*, the same.

——, long podded, seed, *April*, the same.

——, nonpareil, seed, *April*, the same.

——, *Toaker*, seed, *March* and *April*, the same.

——, white blossomed, seed, *April*, the same.

——, *Windsor*, seed, *March* to the middle of *June*, the same.

——, scarlet kidney seed, *April* and *May*.

——, *Battersea* kidney, the same.

——, black kidney, the same.

——, *Canterbury* kidney, the same.

——, early white dwarf kidney, seed, in *January*, on a hot-bed; *April* and *May*, open ground.

——, large white Dutch kidney, seed, *April* and *May*.

Beans,

Beans, Oriental kidney, the same.

——, *speckled kidney, the same.*

——, *scarlet kidney, the same, in dry weather, and in a drill made on the top of the ridge, to preserve them from moisture.*

Beets, green, seed, March, on a moist soil, well dug.

——, *white, the same.*

——, *Red, seed, March and April, and when up six inches, to be cut close to the ground and covered.*

Boor-cole, seed, middle of February, to be transplanted when they shew fine leaves.

Brocoli, Neapolitan, seed, beginning of February, a wall-border, east aspect, to be transplanted when they shew fine leaves.

——, *Purple, the same.*

——, *Turnip, the same.*

——, *White, the same.*

Cabbage, Alnwick, seed, August or the end of February, autumnal sowing of Cabbages is preferable, and when six leaved, to be transplanted into beds, at five inches distance.

——, *early white Dutch, the same.*

——, *large Scots, the same.*

——, *Battersea, seed, end of July, on open ground, to be transplanted in the same soil at four inches distance, and again transplanted in September.*

——, *early York, the same.*

——, *sugar-loaf, the same.*

——, *early May, seed, July and August.*

——, *large English, seed, August and September.*

——, *early small Russia, seed, February.*

——, *red Dutch, seed, August and February.*

Caraway, seed, April.

Cardoons, seed, March, on good light earth, to be transplanted when in fine leaves, fit for blanching about the 20th of August.

Carduus benedictus, seed, April.

Carrot, early born, seed, first crop February, walled border, a light soil.

——, *large orange, seed, summer crop 10th March, winter, middle July, light soil.*

Celery,

Celery, } seed, early, middle of *February*, moderate
Celeriac, } hot-bed, transplant when they have five or
 six leaves; next in *March*, until the middle of
April, in open ground, and in *October*, to be
 transplanted in *March*, and again in *May*.

Celery, *Italian*, seed, *March* and *April*.

Cbervil, *sweet*, seed, autumn, immediately after seeding,
 in a moist, shady spot.

Cbives, parting their roots, planted in *August*, light rich
 soil.

Clary, seed, *March*, in an east aspect, to be transplanted
 in *June*.

Cole, *sea*, seed, *July* and *August*, or immediately when
 the seeds are ripe.

Coleworts, *curled*, seed, *March* and *April*.

————, *variegated*, the same.

Collyflower, *English*, seed, for the early, on old *Cucumber*
 or *Melon*-beds, 20th *August*, transplant when
 well leaved, in fresh, but not very rich earth,
 about *October* transplant into light earth. —

Plants that have been preserved under frames
 to be planted in open ground in *March*, *Febru-*
ary on moderate hot-beds to come in in *August*,
 and *September* on the natural ground; on natu-
 ral ground in *May*, to come in in *November*.

————, *Italian*, the same.

Columbine, seed, *April* and *August*.

Coriander, seed, *March* and *April*, in a warm free place,
 five inches distance.

Cress, *broad leaved*, seed, if desired early, upon a mode-
 rate hot-bed in *February*; in spring on beds
 well exposed to the sun, in drills; for winter,
 in *August*.

————, *common*, the same.

————, *curled*, the same.

————, *Indian*, seed, early, middle of *February*, moderate
 hot-bed, transplant when five or six leaves:
 common crop in *March* and till middle of *April*,
 in open ground; and in *October*, to be trans-
 planted in *March*, and again in *May*.

Cucumber, *early prickly*, seed, *November*, *December*, *Ja-*
nuary, *February*, and *March*, on an hot-bed.

Cucumber, long green, seed, March, on an hot-bed.

———, *short green, seed, February, on an hot-bed.*

———, *white Turkey, seed, May, on an hot-bed.*

———, *green Turkey, seed, March, on an hot-bed.*

Cummin, seed, April.

Dill, seed, March, to be hoed to 10 inches distance.

Endive, broad leaved curled, seed, between 20th June and 12th August, in good ground, when they shew five or six leaves to be transplanted into well dug ground, at fourteen inches distance, to be blanched.

———, *curled, the same.*

Escallion, see Chives.

Fennel, common, seed, as soon as the seed is ripe, to be transplanted in the spring.

———, *Italian, or Finocchia, seed, beginning of April, in drills, six inches seed from seed, on rich light soil.*

Fenugreek, seed, March.

Garlick, separating the roots, July and August, light rich soil.

Gourd, seed, March, on a hot-bed.

Hyssop, slips and seed, middle of March, any place.

Kail, Kilmaurs, seed, April.

———, *Russia curled, seed, March.*

———, *small, seed, April.*

Leek, French, seed, April and July, the largest planted in rich light earth.

———, *London, the same.*

Lettuce, brown Dutch, seed, July and August.

———, *cabbage, seed, February, March, July and Aug.*

———, *capuchin, seed, August.*

———, *green Egyptian, seed, August.*

———, *ice, seed, March, April, July and August, last sown to be transplanted in September.*

———, *Imperial, seed, April and July.*

———, *lamb, seed, July, August and September.*

———, *French, seed, April.*

———, *Silesia, the same.*

———, *white Cos, or Versailles, seed, April and July.*

Marjoram, sweet and pot, seed, April, on a moderate hot-bed, to be transplanted in June.

Marygold,

- Marygold*, common, seed, *March*.
Melons, *Cantalupe*, seed, *March*, in a hot-bed.
 —, *red Turkey*, the same.
 —, *green ditto*, with others, seed, *February* and *March*.
Mustard, white, seed, every month for fallad.
 —, brown, seed, *March*.
Onion, *English*, seed, *March*, on a free moist soil.
 —, *Flanders*, the same.
 —, *red Spanish*, the same.
 —, *Portugal*, seed, beginning of *March* and *August*, in rich ground, dug in *September* or *October*, and laid in ridges.
 —, *silver-skin*, the same.
 —, *Strasburgh*, seed, middle of *July*, for winter salads, to be well covered.
 —, *Welsh*, seed, *July*, hold good in the ground five or six years.
Parsley, common, seed, middle of *February*, on thin open ground.
 —, curled, the same; if desired large, to be left at six inches distance.
 —, *Dutch*, the same; roots good from *August* to *March*.
 —, *Hamburg*, the same.
Parsnip, *Dutch swelling*, seed, *March* and *April*, in a free soil, well situated, rich and well dunged.
 —, *English*, the same.
Pease, *Barn's botspur*, seed, *April*.
 —, common *hasting*, seed, *March* and *April*.
 —, *crooked sugar*, the same.
 —, *crown*, or *rose*, seed, *March*.
 —, *Dutch hasting*, seed, *February*.
 —, *great Dutch Admiral*, seed, the same.
 —, *dwarf marrow-fat*, seed, *April* and *May*, on very lean soil, at a good distance row from row and pea from pea.
 —, *dwarf sugar*, seed, *April* and *May*.
 —, *early Charlton botspur*, seed, *October*, *November*, *January* and *February*.
 —, *early Hessian botspur*, seed, the same.
 —, *Essex Reading*, seed, *March*.

Pease, green rouncival, seed, March and April.

—, *grey rouncival, the same.*

—, *large marow-fat, January to June.*

—, *Egg, seed, is a fine large one, and requires good room, is a great bearer, and holds long, from January to June.*

—, *large sugar, the same.*

—, *Leadman's early dwarf, seed, October and November for hot-beds.*

—, *long dwarf, seed, March and April.*

—, *maple botspur, seed, April.*

—, *master botspur, seed, March.*

—, *Nonpareil, the same.*

—, *Ormot's botspur, seed, February.*

—, *short dwarf, seed, end of May.*

—, *Spanish moretto, seed, February and March, to have good room, one inch pea from pea.*

—, *Turky botspur, seed, March.*

—, *white rouncival, seed, March and April.*

—, *Flanders botspur, seed, March.*

Pompion, seed, February, hot-bed.

Poppy, white, seed, April.

Purslain, golden, seed, early, in March, hot-bed, transplant end of May, in a rich bed, open ground half a foot plant from plant. Common crops in May, first watering the bed, and covering the seed.

—, *green, the same.*

Radish, black Spanish, seed, July and August, to be taken up in November, to be preserved in sand.

—, *early London short-topt, seed, for early crops on a border; and from March to the beginning of April, every fortnight on beds; and in August, for September and October eating.*

—, *early salmon, the same.*

—, *Sandwich, the same.*

—, *Turnip, seed, February and March only.*

—, *white Spanish, seed, July and August, for use in October, all in well trenched ground.*

Rockambole, seed, September.

Rosemary, seed, May, in pots on hot bed, and from slips in May.

Salsafy,

Salsafy, seed, the middle of *March*, by dropping three seeds in one hole, at eight inches distance, to be covered, fit for use in *October*,; such as remain in the ground until the following *April* or *May* may be used as *Asparagus*,

Savory, summer, seed, *April*.

—, winter, seed, *May*.

Savoys, green, seed, *March*, *August* and *September*.

—, yellow, the same.

Scallion, parting roots, spring and *August*, but the latter for their coming in in spring.

Scorzonera, seed, *March* and *April*.

Shallott, smallest single cloves with good bottoms, middle of *August*, to be taken up the *July* following.

Skirret, seed, in *March*, on a moist rich soil, well dressed the *October* before; they may remain in the ground.

Sorrell, candy, seed, *August*.

—, French, the same.

Spinage, round Dutch, seed, every fortnight from the end of *February* to the middle of *May*.

—, mountain, the same.

—, smooth French, the same.

—, prickly or winter, seed, from the 20th of *July* to the 12th of *August*, in drills.

Succory, seed, *April*.

Thyme, seed, in spring, upon a lean border.

Turnip, early white garden, seed, *February*, *March*, and *April*; second crop, *July* and *August*.

—, French long-rooted, seed, *May*.

—, green-topt field, seed, *June* and *July*.

—, large white field, the same.

—, Muscovy, seed, *April* and *July*.

—, red-topt field, seed, *June* and *July*.

—, yellow, seed, *April* and *July*.

—, Prussian, seed, *May*.

N.B. Turnips are always the sweetest that are raised on virgin earth, and hoed to a good distance.



Directions for the Culture of the Plants and Roots in the Kitchen Garden, in an Alphabetical Series, pointing out the Soil, Aspect, and Treatment necessary for their Perfection.



A P P I U M.

SEE PARSLEY.



A R T I C H O K E S.

THE Artichoke I would recommend is the red, for its high flavour, and the largeness of the bottoms.—My practice varying much from the common in raising this article, I shall be very particular in my directions.

By my method fruit may be continued from *June* (or even from *May*, in some seasons) until *October*; but this cannot be done but by annual plantations, executed in the following manner. In *October* lay out a spot of ground sufficiently large, according to the number of plants you design to plant, to be at four feet, row from row, and three feet, plant from plant: trench the ground very well, and in *November* lay over it a good quantity of well rotted dung; mix all well together, rendering it very fine, by breaking the clods, so as to give free liberty to the fibres of the plants, when you are to ridge it, so to remain until about the middle of *March*, when the ground is to be well dug for planting; you are now to take the best off-sets from your Artichokes, and those only which have fibres, are well formed and stocky; these you may distinguish by removing the earth from
about

about the old plants, and with your finger feel for such off-sets as can be easily taken off, without wounding them or the mother-plants; observing not to take such suckers as have fruited, for their roots are sticky, and will not produce such large fruit as younger suckers, I mean such, whose roots cut crisp and tender.

If your suckers are brought from a distant garden, or have been some time taken off, I would recommend their roots to be washed, and before planting to lie six hours in water; this will refresh them, expand their vessels and fibres near their roots, and prepare them for soon striking root. Plant them at the distances above specified, that is, four feet row from row, and three feet plant from plant, watering them well until you perceive them growing: between their rows you may have a crop of spinage and radishes, or a few colly-flowers, but no other kind of crops. About *August* and *September* they will give you good fruit, which, when you cut, be sure at the same time to cut down their stalks, to within one inch of the ground; this greatly strengthens the plant, and prepares it for early fruiting the ensuing season: and in order to strengthen the young plants, I have cut them down after their fruit has appeared a little time; this enables them to give a fine crop the following season: in this manner in particular I treat all weak plants, which is a certain way of recovering them.

About the twenty-fifth of *October*, I cut down my Artichokes to within six or eight inches of the earth, and dig the surface of my ground, laying it up to the plants, in the manner you do when you trench ground; and if you apprehend the soil is not sufficiently rich, you may lay the dung of your oldest and best rotted hot-bed in the bottom of the trench, but upon no account any new dung or litter: this landing of your Artichokes will defend them from winter frosts. In the spring let the old dung be dug into the ground, which will so strengthen the plants, that you may depend upon good crops. I also tried an experiment with my Artichokes, which I cannot omit, and with which I had most extraordinary success. In *June* and in *July* I gathered a good quantity of sea-rack, mixed it with fresh earth, about a fourth

part of old dung, and a small quantity of unslaked lime; these were laid in an heap, to be turned every fortnight or three weeks, to ferment, mix, and rot, so as to be fit to land up the plants about the latter end of *October*, the spring following I dug this compost into the earth, whereby I had extraordinary fruit, with very large bottoms. Observe never to dung Artichoke-land but once in three years, but to lay very rich land to them every winter.

When you smooth your ground in *March*, between these plants, it will be proper to remove the earth from about their roots with a spade, and with your hand take off all the off-sets or eyes, leaving no more than two good ones for fruit; and should any more afterwards appear, take them up; observing never to allow more than one fruit upon a stalk, and when you cut your fruit, cut down the stalk almost close to the ground, as before directed. This was my practice in the culture of Artichokes, by which I excelled. Should your Artichokes prove weak in the spring, hill them up with rich earth, and they will recover.



A S P A R A G U S.

WHEN you have provided yourself with seed, which should never be taken, but from plants that have never been cut, and have been marked for their superior excellence; lay out a spot of rich, light garden-earth, into beds five feet broad, with an alley of one foot and a half. Take the seed the day before you sow it, and put it into a vessel with water, when what are good will sink to the bottom, and what are husky and empty will swim, which are to be thrown away; then take your line, make five or six rows in this bed, and therein drop your seeds, three by three, at half an inch distance, covering them with an inch and a half of earth; keep them quite clear from weeds during the summer, and if *April* and *May* prove very dry, give them a little water. In *October*, when you perceive their straw or haulm turn yellow, cut it down, and laying two inches of

of earth from the alleys on them, cover the same in *November* with three inches of well rotted old dung, to prevent the frost from injuring the crowns of the young plants.

At this season, in a well exposed part of the garden, trench a spot of fresh, light earth, two spades and one shovel deep, and ridge it up to receive the benefit of the winter snows and frost: provide yourself at the same time with a good quantity of old well rotted dung, which, if it is not so well rotted as you could wish, one winter will perform that work, provided it is well spread and wrought in that season, which is the most proper for rotting all sorts of manure.

About the tenth of *March*, open your ground again, and at the bottom of each trench, wherein you are to plant the roots, lay in a good quantity of this well rotted dung, so that it may be seven inches deep below the surface of the earth, over which lay the earth that came out of the trench, five inches thick above the dung, levelling it very well, then lift your young plants from the bed wherein they were sown; first opening a large drill fit for holding them, and laying it high in the middle; upon this hill plant your Asparagus roots at fourteen inches distance, plant from plant, and cover them over with two or three inches of this good earth. The plants are to be raised with an Asparagus-fork, which is beter than a spade, as being not so apt to wound their roots, which is of more consequence than many people apprehend.

In the first year of this plantation, you may have a crop of Onions thinly sown; laying in some rotten dung in the alleys, to mix with the earth, you may also for that year have a crop of Collyflowers; all which will be taken off before *October*, when you are to dress your beds for winter, which must be performed thus:—

About the twentieth of *October*, when you see the Asparagus-haulm turning yellow, cut it down, spading the ground in the alleys, lay the same upon your Asparagus-beds, and before the frosts come on, cover your beds six inches thick with the best rotted dung of your oldest hot-beds, which will protect them in the winter; in *March*, or the beginning of *April*, dress them with

an Asparagus-fork, which will not injure the young crowns of your grass; keep them always clear from weeds, and the refuse of the dung which comes off these beds in their spring-dressings, may be dug into the alleys, for Collyflowers and Brocoli; but plant no Beans in these alleys, they being a sort of poison to Asparagus-roots. By observing the winter-dressings in *October*, and the spring-dressings in *March* or the beginning of *April* regularly, you may cut good Asparagus the third, although it be better to defer it until the fourth year after transplanting.

Most gardeners, in cutting Asparagus, take the biggest buds, and leave the smallest; but from experience I am quite certain, that this is a most erroneous practice; for when the sap descends to the root in *October*, it is in proportion to the bud that returns it; therefore, for the first two years after you begin to cut, you must observe, where your bed gives two large and two small grass, to leave one large and one small one, for the future welfare of the bed; and by observing to be tender of cutting in the two first years, your bed will hold for twelve or fourteen.



B A L M.

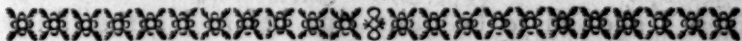
THE Common Balm is propagated by planting slips in *March*, in beds of good fresh earth, five feet broad, with alleys of one foot and a half broad; watering them, if the weather is dry, and to be kept clear of weeds.

There is a sort of Balm that has its leaves finely variegated with yellow and white: this must be planted in a very lean soil, that the variegation may be preserved.—The common sort makes a fine tea by an infusion of its leaves, which is an excellent remedy for the lowness of spirits.

BALM

BALM OF GILEAD.

BALM of Gilead is propagated by sowing its seeds in pots upon an hot-bed in *March*, and in *June* the plants must be transplanted into as good and rich a soil as what you have in the pots, or you may transplant them from their seed-pots into others, putting at most but two plants into a pot; and setting the pots in the green-house, or under a hot-bed frame, cutting them down; and the *May* following they may be transplanted out for good, but on a soil equally good with that directed above; when they are in bloom, cut down their stalks, and give them a dressing. This was my practice with this odoriferous herb, by which means I always had a succession.



B E A N S.

THE Mazagan, and the early *Lisbon*, are the earliest kinds; but I prefer the Mazagan Bean, as it is a very great bearer, and has a fine taste. It is a native of a *Portuguese* settlement upon the coast of *Africa*, and, in many winters and springs, comes first; it is best to have them annually from *Lisbon*, for they degenerate, if sown from seeds raised in *England*. They may be sown in *October* and *November*; and when they appear above ground, cover them with earth, to preserve them from the frost; earthing them as they advance, until the frost is over; when they are to be fastened to the wall, with reeds and lists of cloth; this hastens them on, and prevents their wind-waving or breaking; top them when in blossom, and they will come in very early.—There is another method to have those Beans early: Lay a pound of them under the earth near a well exposed wall; cover them with bell-glasses; in three weeks take them up and you will perceive them springing, which when you observe, plant them under a south-aspected wall, allowing their buds to be equal with

with the surface of the ground, as the frost will not injure them, but be sure to cover their roots well.

Preparing the summer-crops in this manner forwards them much.

Next to these, you may, in *February*, sow the *Spanish*, green *Genoa*, and the *Sandwich* Bean; and after these, once every three weeks, sow the *Toaker* or *Tockay*, the *Turkey*, the *Windsor*, and *Nonpareil* Beans, from *March* until the middle of *June*, in order to have a succession of them as late as you can; you may plant them among your rows of Cabbages, or in fields by themselves, giving them four feet distance, row from row, and six inches to the largest, Bean from Bean; I always planted two Beans together, in holes two or three inches deep, and observed to top them when they were in full bloom, as I have found such pruning to help their fruit to set more plentifully, than if their long stalks were allowed to ramble at large. The Green *Genoa* Bean I allowed to be quite ripe before I gathered it, as I preserved it for winter-use; and when pulled, dried them. In winter I steeped them for some days to soften, boiling them with bacon and fowl; they not only retain their colour, but eat as well as in summer.



BEANS (KIDNEY)

AS I have already treated of raising Kidney-beans upon hot-beds, I shall not repeat it here. The best kind for a good crop, is the *Battersea*, the Dwarfs being only for the hot-bed-use. There are some gardeners who advise planting the *Battersea* upon a moderate hot-bed, and after they have germinated, by showing their root springing at the eyes of the Bean, immediately to transplant them into the open ground, whereby (say they) you will have fruit earlier by a fortnight, than if they were sown in the natural earth. This may happen in mild springs; but this plant being very tender, I have often observed their roots to decay, when they have been thus transplanted. The method
I used

I used to have them early was thus: In the month of *May* I took some of my largest pots, and laying a stratum of good fresh rich earth at their bottom, I planted therein some Beans; these I covered with another stratum of the same earth, laying thereon some more Beans, this I continued to do until I had filled my pots, which I set in the airiest part of my greenhouse; in fifteen days my Beans were springing fast, when I planted them in the same sort of soil, two inches deep upon a wall-border, by which means I had them earlier by three weeks, than those which were sown at the same time, without this preparation, and I had by far more success with them, than with those Beans whose roots were chipped (as the gardeners term it) upon hot-beds. They require to be kept quite clear from weeds, and in very dry weather you may give them moderate waterings, and, by sowing once every three weeks, you may continue them till the frosts pinch them, and render them useless. You may in *May* sow some of the early dwarf *Canterbury* Kidney-beans, which do well at this season.

The *Scarlet Kidney-Bean* must be managed in the way just directed, as they are apt to burst, should the season prove wet after sowing. — This Bean I would recommend for family use, not only as it holds long, but the little trouble it gives: one sowing will be sufficient, it being a very abundant bearer, and holds until cut down by the frost, and is clear from the strings that are so troublesome in the fruit of the other kinds: they are also good boilers, both as to colour and flavour, and when somewhat large, you need do no more than quarter them with a knife. I would advise some well-rotted dung to be laid at the bottom of the drills, to be thinly covered with coal or turf ashes, that its moisture may not reach the seed, (which sometimes has an ill effect) but to receive the fibres when they strike down, which will make the plants grow with vigour; and for the better keeping them dry, I would advise their being sown in drills on the tops of ridges, and in order to keep up your drills, have a reservoir. These Beans must be staked with slender poles or *French* reeds, as they will run to a considerable height, and have a pleasing effect when in fruit and flower, which they will be at the same time.

BEE TS.

B E E T S.

OF these there are three sorts :

1. The Green Beet.
2. The Red Beet.
3. The White Beet with a large stalk, commonly called Beet-chard, or Swiss Beet.

1. **T**HE *Green Beet* is to be sown in *March*, on a moist piece of land, well dug, but not over rich; and the better the soil is wrought, the more liberty the roots will have to swell, and produce large leaves. Their leaves are a good and wholesome potherb, and by blanching or steeping them a little time in water before they are used, they will be rendered very palatable, and their bitterness removed. If you perceive them to come up too thick, they must be well thinned; and if some of their seeds are dropped amongst your summer-carrots, they will do well, as the carrots will be drawn in summer, when the Beets will remain, and be much improved, by the ground being stirred about them. Provided you can rake the bed, on the removal of the Carrots, you may plant a straggling crop of Savoy for winter and spring use.

2. The *Red Beet*, see *PARSNIP*.

3. The *White Beet* or *Beetchard* may be sown at the same time as the *Green Beet*, thinning and cultivating them in the same manner; but observe, that as the Beetchards are only valued for their large flat stems, do not suffer them to appear the first summer, keeping them down by cutting, whereby their roots will be enabled to send up large, flat, and broad stems the year following; in soups, or tryed by themselves, they make a delicate dish; but they are more proper for soups, by their ready dissolving quality, adding a delicate smoothness and fulness not to be imitated by any other herb. For the better supplying the kitchen, they must be sown every year.

B E E T-



BEET-CHARDS.

SEE BEETS.



BROCOLI.

I Proceed now to the culture of the different sorts of Brocoli.—And here I shall mention a method entirely new, which I practised, and whereby I had Brocoli in its greatest perfection. I prefer the White Brocoli, or what is called the *Neapolitan* Brocoli, which I would advise to be sown the beginning or middle of *February*, upon a wall-border, with an east-aspect. So soon as these plants have got five leaves, transplant them into a more southerly one, upon a very rich soil, where they are to stand.

They are transplanted for an increase of fibres; and, if they are twice or thrice transplanted in the nursery-bed, they acquire twice or thrice more strength; and in consequence they produce much better than those plants which have not been transplanted.

In order to have your Brocoli produce well, it will be very proper to transplant them into the furrows or alleys of your onion, carrot, or other kitchen-stuff beds, the beginning of *July*; preserving them from snails, and hilling them, they will produce most noble heads in *January* and *February*; it is a crop will hold for a considerable time, and many persons esteem them more than they do the best Collyflowers; by sowing some very early in the spring, the most forward will succeed your autumnal crops, by which means you will have a succession. The *Roman* or blue Brocoli I would always sow by the tenth of *March*; and when they have got five leaves, transplant them from the seed-bed into the nursery-bed, at three inches distance, plant from plant; and keeping them clear from weeds, let them remain there until the end of *June*, when they

they should be planted into a good soil, in three rows, three feet distant, and two feet plant from plant: for if they are planted thicker, they spire too much: you must hill, dig, and keep them clear from weeds, and in *November* they will shew their heads, which, as soon as they do, (except in very severe frosts) they must be cut off for use, that their side-sprouts may advance for the spring, when they will hold a good while. Brocoli prospers best in a rich loamy soil, not much exposed to the sun; but it should never be planted under the drop of trees. The *Turnip-Brocoli* has nothing curious in it, excepting that its roots are shaped like a Turnip above ground, from which proceed their shoots, and makes a very odd appearance.



The Italian Method of cultivating BROCOLI and FENOCHIA, communicated by the late Lord Bishop of Kilalala, to the Dublin Society.

THE latter end of *May*, or beginning of *June*, on the decrease of the moon, prepare a bed of fine rich light earth, well cleared of stones, and well dug, which is to be well watered the day before the seed is sown, which must be done with a light scattering hand, to leave sufficient room for the growth of the young plants. Work the seed gently into the earth with a fine rake, and stick feathers or something over the beds to preserve them from birds; in dry weather water them morning and evening for fifteen days, and after that every other day for eight or ten days more, and when they are grown to the height of a quarter of a yard, which will be in about six or seven weeks, they must be taken up separately, and transplanted into another bed of fine fresh earth, prepared as the former, with this addition, that holes must be made in it about the size of the crown of a hat, in the form of a basin, at a foot and a half distance; in each hole must be set a single plant, putting with it two large handfuls of sheeps-dung, filling up the hole with fine mould,

mould, as practised in making Cucumber holes: they must be watered morning and evening for eight or ten days, and afterwards every other day, as the season requires, till they seem in perfect health: there is nothing afterwards to be done, but now and then hilling them, as you do Collyflowers: in about five or six weeks, the flower will be fit to cut, which is known by its closeness and hardness, as well as the extreme beauty of its colour, having a purplish bloom like that on Grapes: they never cut more than about nine or ten inches with the flower, as the stalk shoots out fresh sprouts, which are cut from time to time; those designed for seed are never to be cut, but suffered to grow till the seed is fit to gather, which they know by cropping a bit and squeezing it hard between the finger and thumb, if the seed shoots out, it is fit to gather, and must hang in the sun to harden; if it does not fly from the husk, but bruise in the squeezing, it must stand a while longer.

I was favoured with these directions by a gentleman at *Rome*, where he resided many years: the same method is practised in *Italy*, except the season of planting, which with them is in *August*: but for this climate he fixed on the end of *May*, or beginning of *June*, as most proper. These directions have been followed in *France*, and with great success; nor have I been less attentive to them, notwithstanding the opposition given me by my gardener, in which I have had all imaginable success; my Brocoli being larger, sweeter, tenderer, and in much greater quantity than ever I met with here before, and the flower frequently as large as a small Collyflower.

I suffered my gardener to follow his own way, and I observed what he sowed early in the spring was apt to run in hot weather; what he sowed in autumn, the frost stunted in its growth, and the best he ever produced were not better than common Sprouts.

FINOCHIA should be managed after the same manner, only sowed a fortnight later, being extremely apt to run, and great care taken to earth it in the manner you do Celery; our *English* gardeners rarely taking care to draw the earth high enough in blanching.



CABBAGES.

THE best early Cabbages are the *Early Yorkshire*, the *Battersea*, and *Sugar-loaf*; these should be sown the end of *July*, upon an open spot of ground; when they have got six leaves, they should be transplanted into beds of the same earth at four inches distance, that they may grow strong and stocky; and about the end of *September* they may be planted out into a good rich spot of ground amongst your winter Spinage, which when taken away in the spring, you should draw the earth up to the stems of your Cabbages, whereby they will be much strengthened, and in *May* they will be turning in their leaves to cabbage; then it will be proper to tie some of the most forward with bass strings or small fallow twigs, to blanch their innermost leaves, by which means they will have Cabbages ten days sooner than if they were not so used. The *Battersea* and the *Sugar-loaf* Cabbages are treated the same way, and are sown at the same time; but as the *Battersea* is apt to fly up, I prefer the *Sugar-loaf*. After your early Cabbages are gone, you may ridge your ground for *Celery*, *Celeriac*, *Endive*, &c. There is a sort of Cabbage, called *Musk-Cabbage*, which is now neglected, and not inserted in our seedmens catalogues; but for taste and flavour, no gentleman should want them in his garden; it is managed in the same manner as the *Alnwick* Cabbage, and is in use from the beginning of *October* until *Christmas*; and as they are apt to suffer in very severe winters, either house them, or, laying up your ground in ridges, pull them up by their roots, and lay them sloping on their sides, covering their stems up to their leaves and the Cabbages with straw, which will preserve them until *February*. The large *English Alnwick*, *Red Dutch*, and large *Scotch* Cabbages may be sown in *August*, or the end of *February*; but in this country I prefer autumnal sowing of Cabbages; and when they have six leaves, plant them out into beds at five inches distance.

tance. In *October*, if your land be dry, plant them out at three feet distance every way; but if you have a wet soil, it will be proper to defer this work until the beginning of *March*; keep them clear from weeds, which can be easily effected when you draw the earth to their stems, which may be done in *April*, and be repeated as you find necessary; and when you have transplanted them, if the weather is dry, water them often, until you perceive them to grow.

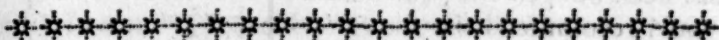


C A R R O T S.

THE two sorts mentioned in the seedmens catalogues, are those which are fit to be cultivated in gardens. To prepare for the sowing of Carrots, take their seeds and rub them well between your hands, that they may separate; for the hairy substance with which their seed-vessels are covered, makes them adhere to one another. I would recommend the first crop of Carrots to be sown about the middle of *February*, upon a wall border which has been dunged the year before; and for this crop I would recommend the the early Horned; but when you sow Carrots, or any other light seeds, in sandy ground, tread them in with your feet before you cover them, to prevent the wind from blowing them off, which often happens to Carrots, Parsnips, Lettuces, Onions, Leeks, &c. About the tenth of *March* I sowed my general crop of the Orange Carrots in beds four feet broad, where I had my Onions the former year, having dug it in *October*, and laid it up in ridges for the winter's frosts. I observed always to sow in calm weather, and sometimes to put amongst them some seeds of Radishes and Cabbage-lettuces, but no other sort. My last sowing for Carrots was about the middle of *July*, for winter, or rather spring use. In *October* your large Carrots are to be taken up, when their tops are to be taken off, and the Carrots laid in dry sand, where they will be preserved from frost for winter use. Carrots are to be kept clear from weeds, and thinned to three, and sometimes to five inches, root from root, to have them large; as

soon as you take them out of the ground, direct it to be laid in ridges for the advantage of the winter's frost, for no ground generates vermin so much as that on which Carrots have been sown; to prevent which I have often found no expedient more effectual than the free use of unslaked lime; which with the well working of the beds, and exposing them to the winter frosts, contributes much to the growth of these roots, which require a great freedom in the soil to swell in, and become large; and in order to improve their flavour, give them the advantage of new soil; this improves their flavour, as well as Turnips. The removal of the Lettuces, and the drawing of the Radishes are also of advantage to the Carrots, as they give a sort of artificial stirring to the beds, and are taken away before the Carrots come to their full growth.

Carrots, from late experiments, have been found very advantageous for the feeding and fattening of cattle, and are well worth cultivating upon such farms as have a soil favourable to them, that is, of a deep and light texture, as well as sandy grounds; in such soils they grow with a luxuriancy, which well rewards the farmer's care.



C E L E R Y.

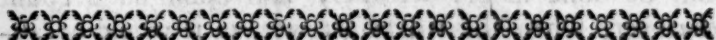
THE early Celery is to be sown upon a moderate hot-bed, under a framed or a bell-glass, the middle of *February*, covering the seeds very thin, having first watered the bed, which must be six inches thick of dung, in order to make the seeds germinate the sooner. In about five weeks the young plants will appear, and if the weather is mild, air them in the day, covering them at night with matts; in dry weather give them water twice a week. When they shew five or six leaves, plant them into the nursery-bed made of fresh garden-mould, at one inch distance, plant from plant, shade and water them, until they have taken root. In *March*, and until the middle of *April*, you may sow Celery upon beds in the open ground, but no later than *April*, as the Celery you planted in the nursery in *May* will be sufficiently large

large the latter end of *June*, when you are to take off the largest plants, to set in ridges laid out from north to south, of what length you please, in ground which had been well dunged in *March*, or where your earliest crop of Lettuces had been sown. Your ridges ought to be four feet, ridge from ridge, two feet in depth, and well wrought at bottom, that the fibres of the Celery may have free liberty to descend, by which means they will have large roots. In three weeks after-planting they will begin to swell, and their leaves and stocks gradually advance, when it will be proper to land them, that is, to lay earth to the under part of the plants, which must be done in dry weather, and upon no account whatever, when the ridges are wet, as it would occasion your Celery to rot, or become sticky, hard, and ill-flavoured. Observe that the earth is only to rise within one inch or two of the tops of their hearts; for were you to cover them, they would be infallibly destroyed; therefore you are to earth them as they advance, repeating it as they grow, which will give them fine, large, and well-coloured heads, eating crisp and tender: should you observe any part of them to shoot or fly up, or shew their seed-vessels, let them be used for soups, not for salladings; by *November* the seeding plants should be taken up, as on the approach of the frost they rot, and are apt to infect the sound ones.

To have Celery very large, I pursued the following method, which I found to answer extremely well, and which I discovered by the following accident.

I had some Celery plants, which flowered and seeded very well in the ridges. Observing that some of the seeds had fallen in *September*, I raked the ground over them; in the beginning of *October* the young plants appeared, and the winter came in so mild, that few of them suffered, but held out very well; by the middle of *March* I transplanted them into a good rich nursery-bed, shading and watering them, until I perceived them growing. I kept them clear of weeds, and they grew stocky and larger than the plants which were sown the spring following: however, fearing, if they were landed too soon, they might fly, become rampant and sticky, I planted them out into a second

nursery bed, the latter end of *May*, shading and watering them as before, and landed them in *July* and *August*, and never before had such large, tender, well-blanced Celery as they were, not one plant in a hundred offering to fly; this experiment I pursued with the same success; and I am persuaded, if many of our kitchen-garden seeds were sown in autumn, they would succeed better, forming good roots in autumn, while the weather is gentle and mild; whereas in the spring and summer they are hurried up by the sun, without forming sufficient roots or fibres to maintain them in vigour.



CHARDONS.

THESE kitchen plants are not commonly propagated by our kitchen gardeners; but as some gentlemen esteem them, I shall give my own practice, by which I had them exceedingly large, in which their excellence consists.—The best time to sow them is in *March*, upon a good, rich, light earth, to be kept clear of weeds, and as soon as the plants come up, they must be well watered; when they have five leaves, transplant them into beds of the same texture, at one foot distance, plant from plant, watering them well until you perceive them to grow, laying up the earth, or landing them as you do Celery, at the same time clear them of weeds: here they may stand until the middle or the latter end of *June*, or till the tenth of *July*.

Then prepare a piece of rich sandy earth, and lay it up in ridges as you do for Celery, at six feet distance, ridge from ridge, and near three feet deep, taking care that the bottoms of these ridges are well dug, for the easier descending of the roots. These Chardons will be fit for blanching by the twentieth of *August*: in dry days prepare some wheat-straw ropes, which are better than hay or any other bandage, gather up their leaves in a regular manner, observing not to bruise or break them, tie the ropes within six inches of their tops, when the plants are quite dry; bank up the earth as high as they are

are tied, but no higher, lest you choak the plants and rot them; and as they grow long, tie and earth them as before. I have had them with well blanched stems, three feet high, and sometimes more. The earliest Chardoons will be blanched for use in *October*, and will hold to *December*, if not cut off by frost: they may be housed as are other articles useful for the kitchen.



C H E R V I L (SWEET.)

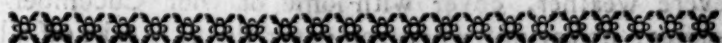
IT must be sown in autumn, immediately after the seeds are ripe, in a moist shady spot of the garden, where it will thrive best, and, if not suffered to feed, it will continue for some years.



C H I V E S.

CHIVES are propagated by parting their roots, to be planted in *July* or *August*, in a light rich soil, five or six small heads in one patch, at one foot distance every way, and in beds or borders four feet broad, observing to keep them clear of weeds, and if you would have them early, they must have a south-east aspect. Here they may continue for some years, but you may have a new plantation when you please.

The same culture is to be given the ESCALLION.



C I N A R A, PRICKLY.

SEE CHARDOONS.



C L A R Y.

THE common garden Clary must be sown in *March* upon a bed of fresh earth, to be transplanted in *June*, on beds of the same soil, where, by keeping it clear of weeds, it will continue for some years.



C O L L I F L O W E R S.

TO have very early Collyflowers in this country for the market, where a gardener cannot get more than one shilling, or two at most, for a flower, is not worth his pains; but as this performance may fall into the hands of such as pursue gardening more for pleasure than profit, I shall lay before them my practice, with some observations.

You must be provided with seeds of the earliest kind, which are to be sown upon an old Cucumber or Melon-bed, the twentieth of *August* at farthest; in hot sunshine, shade the bed, and in dry weather water them gently; for, should they be hurried up, they become too long in the shanks. So soon as they have six leaves, transplant them into a spot of fresh earth, shade and water them, until they begin to grow: observe that where you transplant them, that the soil is not over-rich; for if they are put into too rich earth, it hurries them on to flower, which I have observed some to do in mild winters: about the middle of *October*, transplant most of this sowing into light earth, made up into such beds, as you can, in very severe weather, cover with some of your Cucumber-frames; observing, when you cover them, to take off all their decayed leaves, and in all temperate days, to give them as much air as you can. With respect to such plants as you would have early, plant three of them under one of your largest bell-glasses, in rich ground, and others upon a very rich south-aspected border, near a wall, to take their chance for the winter; but
such

such as you set out for good, should have a very rich, dry and sandy soil, in which they will succeed much better than in clay. If any of your plants upon the wall-border fail about the beginning of *March*, you can supply them from the bells or frames: those under bells, as well as frames, are to have air in mild weather, covering them only at nights, or in very cold days; when their leaves become large, and they are hastening to flower, you must draw up the earth to the flanks of those under bells, and prop up the bells, that they may receive air, and in mild weather, the bells may be taken off entirely. I am not fond of watering these plants, especially in sunshine; for water given at this time most certainly scalds their leaves, which ends in the entire ruin of their flowers, making them small, yellow, and frothy, as the gardeners term it. When you perceive them begin to flower, which, by good management, may be about the end of *May*, break their inmost leaves, to shade the flowers from the sun, whereby they will keep white and firm for some days, until they arrive at their full size, which you may know by their flowers seeming to break and open; then pull them up early in a morning, root and all; if for immediate use, cut off their leaves; but if you intend to keep them for some days, let their leaves remain, and keep them cool. As for the plants under the wall, they should be landed, that is, the earth should be drawn up to their under-leaves, about the end of *February*; but if you have Radishes and young Lettuces between them, take off your Radishes, before you earth up your Collyflowers; but do not water them, except in extreme hot weather, which does not often happen in this country. Take care also to pick off snails, which now come out in numbers to feed upon their leaves, after their long confinement during the winter. By the middle of *June* the plants will shew their flowers, at which time, use them as has been directed for the early sort under bells, but observe always to water them sparingly, except in very dry weather: such as were preserved under frames, should be planted out the beginning of *March*, where they are to flower, observing to give them the
same

same culture as those upon wall-borders, already treated of; by this means you will always have a succession, until those sown on moderate hot-beds in *February* begin to come in on the natural ground in *August* and *September*; or those sown on the natural ground in the beginning of *May*, which last may be continued until *November*, or later, in mild weather.

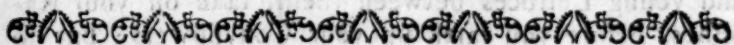


C R E S S E S.

- | | |
|----------------|----------------------|
| 1. The Common. | 3. The Broad-leaved. |
| 2. The Curled. | 4. The Indian. |

THE three first sorts, if desired very early, may be sown upon a moderate hot-bed, in spring they may be sown upon beds well exposed to the sun, where they are to be cut when young, observing to sow them in drills, and to sow the curled and broad-leaved sorts at a greater distance than you do the common, that their leaves may stand at a distance from each other, for the better preservation of the plants. You may sow Cresses in the common ground in *August*, for winter sallading, where they will stand in mild winters.

The Indian Cress may be planted in *April*, in holes at eighteen inches distance, hole from hole: their flowers are used in sallads, and their seeds, when gathered young, make an excellent pickle.



D I L L.

DILL is propagated by seeds sown in *March*, upon beds of light earth. If they are too thick, hoe them to ten inches a-part; keep them clear from weeds, and in dry weather, water them. These plants are very fit for persons who pickle quantities of Cucumbers, as they give a fine relish to these pickles, and several other things.

E N D I V E.

THE curled broad leaved sort is the fittest to be cultivated in gardens. The proper seasons for sowing are, between the twentieth of *June* and the twelfth of *August*, upon a bed of good kitchen-garden ground. When the plants have got five or six leaves, they should be transplanted into a spot of good well dug earth, at fourteen inches distance, plant from plant, to be well watered until they begin to grow again; and as soon as you perceive they have got a good number of leaves, take some bafs-mats, and having placed the leaves in regular order, tie them near the top, and in three weeks the plants will be blanched and fit for use. At this time they will send out, or rather burst out, their inmost white leaves below the tying, whereby you will know that their inner leaves are well blanched, and fit for use.

There is another method of blanching endive, which is used for the winter and spring crops, *viz.* In dry weather lift your Endive plants, and with a round-headed dibble, plant them into the sides of the ridges of good, rich, well-dug beds, sloping to the sun, covering the plants in such a manner, as that their tops only are above ground, whereby they will be secured from frost, and the rain, by the declivity of the situation, will run off. In three weeks the plants will be sufficiently blanched; but as they do not keep long, it will be necessary to keep planting every seasonable opportunity. During the cold seasons, and in very severe weather, I have kept blanched Endive in the house, in earth and sand, for four weeks. Instead of tying up your Endive for blanching, lay boards on it when full grown in the heart, and in fourteen days you will find it well blanched.

E S C A L-



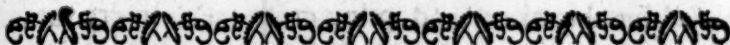
E S C A L L I O N.

SEE CHIVES.



F E N N E L.

THE common Fennel is propagated by sowing its seeds immediately after they are ripe, and in the spring transplanting them into beds of good earth, at about one foot distance. Whenever the plants spire and shew their seed, cut them down, that they may not shed it, as it would over-run the garden. Their roots stand many years.



F I N O C H I A.

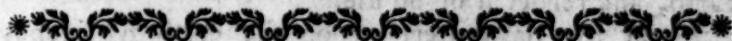
THE Finochia, or sweet *Italian* Fennel, is but little used in this country. However, I shall here give my own practice, by which I had it very good.

I got my Finochia seeds annually from *Leghorn*. About the beginning of *April* I sowed it in drills, six inches feed from seed, upon a rich light earth, on the border of a south-east aspect wall. In dry weather water the drills gently, until the plants appear above ground, which will be in four weeks after sowing; observing to keep the ground clear from weeds. The drills should be two feet from one another, and four or five inches deep. Draw up every other plant, to give them room to swell.

In a month after they appear, their lower parts will swell and become big, just above the surface of the earth, when it will be proper, in dry weather, to land them as you do Celery for blanching, this will make them

them eat crisp and tender; yet this must not be done all at once, but as the plants advance. For a succession you may continue sowing, following the same culture until the middle of *June*.

The *Italian* method of managing *Finochia* may be seen under the article *BROCOLI*, as communicated by the late Lord Bishop of *Killala*, to the *Dublin Society*.



G A R L I C K.

GARLICK is propagated in the same manner as *SHALLOTS*; but if in *May* you perceive it inclines to spire up and seed, twist the tops of their blades, which will prevent their seeding.



H O T - B E D S.

I Propose to give some directions for making Hot-beds of horse-dung, for those crops in the kitchen-garden which require to be early, especially *Cucumbers* and *Melons*: the raising of which, when the heat of the sun is declining, makes it necessary to assist nature in our climate.

Take a good quantity of new made horse-dung from the stable, with a good quantity of litter; lay this dung in a heap for seven days to ferment, that the rank fume may pass off; if you observe that the dung and litter are not equally mixed, turn it over again, and mix it as equally as you can, and let it lie four days longer; by this turning and mixing, it will acquire a due heat, which, when you observe, make a trench where you intend to set down your hot-bed, one foot and a half deep, if the situation is dry, and in length and breadth corresponding to the frame you are to set over it, observing that the dung projects six inches all round beyond the frame; then wheel the dung into the

the trench, stirring every part of it with a fork, giving a gentle treading with your feet, in such a manner, that it may be perfectly even through every part of the bed; there must be three feet of this dung, above which lay four inches of pure dung, without any mixture of litter, the use of which is to prevent the steam of the dung from rising, as it often does without it; set your frame upon it for five or six days before you lay on the earth, that the violent heat may go off, otherwise it would burn the earth, and render it of no use.

About five days after, lay on the earth six inches deep, and when it is warm, sow your seeds in it; for the management of which I have already given sufficient directions, in the raising of the early Cucumber. Three weeks after, you must prepare dung for a nursery-bed, in the same manner, using your dung as in the former, with this difference, that when you turn the dung the second time, you must mix with it some coal ashes, which will preserve a continuance of the heat much longer, than if you had not used any; take care to lay and tread your dung equally, otherwise it will heat unequally in spots, when it will be the sooner spent. As soon as you perceive the heat is abating, add some new dung quite round the edges of your beds, which will renew the heat, and preserve it a considerable time; but observe always, as the heat of your beds decreases, to increase the coverings at night on your frames and glasses.

When your plants are fit to be planted out in ridges or basons, prepare and dress your dung in the same manner, mixing it with coal-ashes, as is directed for the nursery-beds; but at this season, if the ground is dry, I would dig the trench two feet deep, and raise the dung two feet above the surface, managing them in the same manner as your beds for frames, observing the earth for Cucumbers must be twelve or sixteen, and for Melons eighteen inches deep; if your ridges or basons decline in their heat, add new dung round their edges, covering them with it, to allow the roots of the Cucumbers space and good earth to run into, which is of greater service to the plants on the ridges, than most of our gardeners apprehend; for as I have already observed,

observed, the roots of Cucumbers and Melons grow to the same length of their runners.

The dung taken from stables where the cattle are fed on straw, is the best for garden use. And in order to be as frugal as possible of your dung, plant Cabbages and Collyflowers on your Onion-beds, which are always highly dunged, and hold good a long time, for many other crops.

In order to encrease your dung, in *October* take the leaves of your trees, and mix them with mould, by laying a stratum of leaves and another of earth alternately; this makes a very rich and clean compost for most kitchen-garden uses, particularly if helped with a little unslaked lime; in the spring it will be fit for use.

Some persons take the garbage of their kitchen-garden for this purpose: I do not approve of this method of making dung, nor of the cleaning of ponds, unless it is left to rot for some years.

In some situations, where there is a scarcity of manure for land, and an extent of woods or large groves, gentlemen would find their accounts in clearing their bottoms of the rotted leaves, which, when turned up with earth, and a mixture of unslaked lime, would make a good manure for most grains, and is well worth their attention. The ditches, and where the washing of the woods may be carried, should be taken up for the same purpose.

I have seen cows-dung made use of for ridging Cucumbers and Melons, and when well tempered, it keeps the heat as long, if not longer, than horse-dung; and I would prepare cows-dung for my flower-garden in ridging of hot-beds, as it rots much sooner in that way, than by turning, as I have observed in the article of preparing this dung for the composts for the Oriental Hyacinths.

Besides these hot-beds of dung, there has been discovered, within these few years, another kind of hot-beds, made of tanners-bark, which are thus prepared: The pits or trenches to hold the bark should be three feet deep, and never less than twelve feet long, and six feet broad, as a less dimension will not keep the heat; if they are sixteen or twenty feet in length, they will retain
the

the heat so much longer. They should be bricked upon all sides, and at bottom, as well to hinder the earth from falling, as to prevent its mixing with the bark. This bark may be taken from the tanners pits, and should have one week to drain off the superfluous moisture, otherwise the bark will not heat.

When you put it into your bed-pits, lay it in lightly and even, not treading it down with your feet, as you do dung; for this would make it cake, mould, and never heat; put no dung below it, for that would make it heat too soon, which would have a very bad effect. The tan will keep in good heat for four months; when the heat subsides, lay on the quantity of half of the depth of your bed of quite new bark, and it will soon recover its fermentation, and continue in good plight for five months longer. These beds of bark are not to be covered with earth, as they are used to raise hard-shelled exotick seeds in pots, or even in the bark itself, and for preserving the most tender exotick plants in stoves; and are the most successful beds for bringing the Pine-apples or Ananas to perfection.

If you use tanners-bark for your Melon-beds, you must cover it with ten inches of proper earth; and in it I have fruited the *Cantalupe* Melons to great perfection.

After the bark has served the hot-beds, the finest particles of it, when taken out by the riddle, and exposed to rot, is a very good manure for some flowers; viz. the Oriental Hyacinths, and particularly the Oriental Narcissus: and the grosser part is a very good covering for their beds, or to put into the alleys of their beds in winter, to protect them from the frost.

K A I L,

KAIL, or KILMAURS.

Kilmaurs or *Scotch Kail* are the best of any for boiling in winter, but they will not eat tender, until they are well pinched with the frost. They are to be sown in *March*, and pricked out into nursery-beds in *May*, at three inches distance, keeping them clear of weeds; to be planted out for good in *July*, into ground where you have had your early crops of Pease, and when you have laid in some dung, plant them at one foot and a half distance every way; watering them until you perceive them to grow. In *October* hill them up, and keeping them clear of weeds, is all the culture that this Kail and Coleworts or open Kail require.

LEEKS.

LEEKS are cultivated in the same manner as Onions. About the beginning of *July* take your largest and best rooted Leeks, and having cut off three or four inches of their long blades, more or less, as they are in length, trim their longest fibres, and plant six rows in a bed of light rich earth, four feet broad, where, if they are kept clear of weeds, they will grow large in their heads, and will be much better than any that have not been transplanted: thinning the seedlings will be of great use. Some sow Leeks and Onions promiscuously, alledging, that when the Onions are taken off, the Leeks may remain. But this method I would not advise, as the laying the Onions to make them swell must be performed with the hand, and the Leeks near them may be injured; whereas the topping the Leeks must be done with a knife.—The *London Leek* is to be preferred to the *French*.



L E T T U C E S.

- 1 Cabbage.
- 2 Silesia.
- 3 Imperial.
- 4 Ice.
- 5 White Cos, or *Versailles Upright*.
- 6 Aleppo.
- 7 Brown *Dutch*.
- 8 Capuchine.
- 9 Princess Lettuce.
- 10 Egyptian Green Cos Lettuce.

N.B. The last-mentioned is the best for general use, and is hardy.

There are several other kinds of Lettuces in the Catalogue, but those here mentioned are chiefly to be preferred, whether for fallads, or for the kitchen use: wherefore I shall confine myself to their culture.

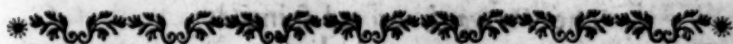
FOR winter use I recommend the Cabbage, the Capuchine, and Brown *Dutch*, to be sown the beginning, the middle, and the end of *August*, but not later. Lettuces sown about the first of *August*, will cabbage by *November*; but the first frosts that set in will entirely rot them. Those sown about the middle or end of the month will not cabbage before the end of *March*, or the first ten days of *April*. Some sow the Ice Lettuce at this season (I mean in *August*) and at the end of *September*, transplant them upon a wall-border, where they may be preserved, should the winter prove mild: in *April* transplant them again, into a rich border, and in six weeks they will cabbage and produce fine heads. From the beginning of *March*, and once every fortnight until the end of *April*, you may sow Cabbage, Silesia, Imperial, Aleppo, Ice, and the Egyptian Green Cos Lettuces. As soon as the Ice or Cos Lettuces have eight or ten leaves, transplant them into a good rich piece of ground,

ground, eighteen inches, plant from plant; water them until they have taken new root; and when you perceive them closing in the hearts, tie them with bafs, when they will blanch and cabbage better and firmer than thofe which have not been transplanted. Many gardeners fow their Lettuces among their Onions, but this I would never advife.

The Lamb Lettuce, or *Valerianella* may be fown in *Auguft*, in a bed of good kitchen-garden ground: if you defer fowing them until fpring, they will not come up until the fpring following; however, by keeping their beds clear from weeds, they will then come up in great abundance.

The *Aleppo* Lettuce is only valued for its fine spotted leaves, which make a pleasing variety amongst other forts.

The Green *Egyptian* Lettuce I moft particularly recommend; its culture is the fame as the *Versailles*, or White Cos Lettuce.



MARJORAM, SWEET and POT.

I Never ufed any but the fweet fort, which is an annual (the perennial kind, is a green-house plant) and is fown in *April*, upon a moderate hot-bed, where it may continue until the middle of *June*, when it will be proper to plant it into a bed of frefh light earth, watering and fhading it until you perceive it growing: in *Auguft* or *September* it flowers, which is the proper feafon for pulling it up.

The BASIL BUSH is cultivated in the fame manner and muft be alfo taken up when in bloom.



M U S T A R D.

THE seeds of this plant are sown in *December* or *January*, upon hot-beds, so that in a month after sowing, they are ready to cut, which is best when the plants have two, or at most three leaves; for if they are suffered to stand longer, they will be too strong. You may sow them thick in drills upon the border of a south-aspected wall, for sallading in *March* and *April*, until the Lettuces and other sallads come in.



O N I O N S.

- 1 The *Strafburg*.
- 2 The *Silver-skinned*.
- 3 The *Welsb*.
- 4 The *Portugal*, or red-skinned.

THE *Strafburg* should be sown the beginning of *March*, in good rich kitchen-garden ground, which has been well dug the preceding *September* or *October*, and laid up in ridges for the benefit of the winter frost, to mould it; the dung (which in hot sandy grounds should be cows, and in clay soils, horses) may be laid in the bottoms of the ridges to rot, to be dug in in *February*. I would have Onions sown in beds, for the better weeding and thinning them.

These beds may be four, or at most five feet broad, and of such a length as the ground will allow. They must be kept constantly clear of weeds, and first thinned to two inches, bulb from bulb, and afterwards to six, as your Onions swell in bigness, for the more they are thinned, the larger they will grow; and as soon as you perceive the tops of their grafs to grow yellow, and fall, which, if a sandy soil, they will do in *August*; but in clay they continue much longer in verdure. But should you perceive the bulbs not to swell, lay down their grafs

grafs in dry weather, and in a month's time they will be ready for taking up, which must also be done in dry weather; laying them where they will have plenty of sun and air; to be housed in a fortnight or three weeks. When they are housed, let them have air, and be frequently turned, and should their necks swell, twist them very tight with your fingers, which will prevent their springing, and keep them sound for winter use; in severe frost, they may be hung up in warm places in nets, or dry wheat-straw laid over them.

Another method I would recommend for the preservation of Onions is the following: as soon as they are taken out of the ground, let their green hearts be drawn as deep as you can out of their necks, which you must open with your thumb for the purpose, then they are to be laid in the sun for a few days, when they will keep well, provided they are spread on a dry floor, to be now and then turned, and aired in dry weather.

The culture of the Silver-skinned Onion is the same with the *Straßburg*; they have a much milder taste, and make a more beautiful appearance.

You may also sow some seeds of the *Straßburg* Onion about the twelfth of *July*, for sallads in winter. These will stand very well in moderate weather, for spring or winter use, and their culture is the same as that prescribed for summer crops. Observe to give the seed sown at this season a deeper covering than those which are sown in *March*, otherwise the frost may force them out of the ground.

However, there is an Onion that is better for spring use. This is the *Welsh* Onion, which should be sown in *July*, in beds four feet broad, and what length you please. Cover the seeds well, and in ten days they will appear; weed them well: by *November* their leaves will have withered, when you must lay the earth in the alleys on the beds, raking it gently. About the beginning of *February* they will appear again very strong, and in *March* will be fit for use. They taste very strong, and should they be too thick, thin them about the end of *March*, and planting them in beds, they will produce good seed in *September*. They will continue

good in the ground for five or six years; but it will be best to have a plantation every three years.

The *Portugal* Onion is cultivated in the same manner as the *Straßburg*.



P A R S L E Y.

1 Common.

3 *Dutch*.

2 Curled.

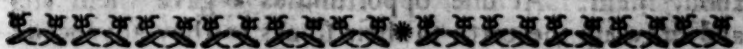
4 *Hamburg*.

THE culture I made use of for these plants, differs so much from the common method, that I cannot avoid being very particular in respect to it.

Most gardeners sow the common sort in *February*, in drills, whereby the plants are very thick, and crowd one upon another, in such a manner, as not to answer the use they are intended, that is, to be well furnished with leaves, which they never can be, from that practice. Therefore I recommend the broad-cast, sowing the seed very thin, and, if occasion, to thin them to four inches, plant from plant.

The Curled is to be cultivated in the same manner, to be left six inches, plant from plant: its fine curled leaves will answer well for garnishing dishes. Observe not to suffer it to run to seed, by keeping it properly cut, whereby it may be kept in full leaf and beauty for three years.

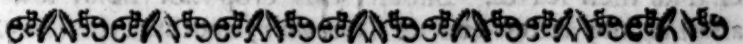
Neither the *Dutch* Parsley, nor the *Hamburg*, are valuable for any thing but their roots, which, when boiled, are used medicinally; they are cultivated in the same manner as Carrots, hoeing the plants to five inches square distance, and keeping them clear from weeds. The roots will be fit for use in *August*, and will continue good until *March*, if sown upon a good rich, light soil.



PARSNIPS.

THE *Dutch* swelling Parsnip is the best for kitchen-use: and as their culture is the same with the Carrot, it is unnecessary to repeat it; but you are to observe, when you thin them, they must have a greater distance than Carrots.

I have often sown Red Beets amongst my Parsnips, with very good success; they differ in nothing from the culture of the Parsnip, but in this, that if they are sown on a hot dry soil, they fly up to seed in *June* or *July*, which makes their roots small and sticky. To prevent this, as soon as they rise six inches, cut them down, and hoe them, which will make their roots swell considerably. When I sow them with Parsnips, I only drop a few of their seeds amongst them; and when sown by themselves, they are to be thinned to one foot, plant from plant. The best Beet is the round turnip-rooted kind.



PEASE.

I Have already treated of raising Pease upon hot-beds, in which I used the dwarfs only; wherefore I shall not take notice of them here, but cannot omit to mention another method, by which I had Pease very early. In *September* I sowed some of the Dwarf, and *Masters's* early Hotspur in pots, and sunk them in the common earth; and as soon as the frost became violent, I brought them into the green-house, near the windows, where I made a border of good fresh earth, without dung; and by the beginning of *December*, when the Pease were stocky, I raised them out of the pots by a trowel, with a clump of earth, and planted them in this border, in rows at three feet distance, and ten inches plant from plant, that they might have sufficient room, watering them gently, to settle the earth

about them. At due opportunities I gave them air, and drew up the earth to their stocks as they advanced: when they were in bloom, I watered them well, but with water that had stood in the house four and twenty hours, that it might be of the same temperature with the air in the green-house; I supported the Pease with rods, and had a good crop by the tenth of *March*.

I may be condemned for setting them in the green-house, where the other plants might imbibe too much moisture from these early Pease, but by taking care to be sparing of water to them, while these were growing, they were not in the least injured. This practice I would not recommend, where the plants are much crowded.

The Pease which succeed these forced crops are, the early *Hessian*, the *Masters*, *Charleton*, and the *Reading Hotspur*. In warm sandy grounds, and upon south-wall borders, they may be sown the end of *October*, or beginning of *November*; earthing them as they advance; and in hard frost, lay some pease-haulm over them; but be careful, whenever you perceive the Pease advancing and expanding their leaves, not to earth them higher than their leaves. Should this crop not hold, sow another the latter end of *November*, another the beginning of *January*, and another the beginning of *February*; the last I have often observed to hold as well, and better, than any of the former crops, and to have the same culture: I would also recommend, when sowing, to have two rows pretty near each other, that is, within ten inches of one another, and between them and the next two close rows, you may leave a space of two or three feet. The occasion of sowing in this manner is, that the stakes, being placed in the middle, may support both rows, whereas, in the common way, every row of Pease must have a row of stake. The gardeners who vie with one another for the earliest crops, never stake their Pease, alledging that it encourages them to grow too much to haulm, and not to fruit. I admit this may be the case in sandy soils; but in clay-lands, if the Pease, (especially the large kinds, such as the *Marrowfats*, *Sugars*, *Egg*, *Rose*, and *Rouncival* Pease) are not staked, and sown at very great distances, row from
row,

row, they will infallibly rot, before they are fit for the table.

Let your early Hotspurs be sown in *February*, to be succeeded by the *Spanish Morrato*. In *April* and *May* will be the proper season for sowing large Pease, such as the Marrowfats, Rouncivals, Rose, Egg, Crooked Sugar-Pease, and *Dutch Admiral* Pease.

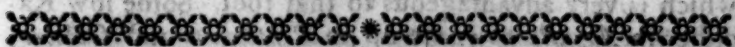
For these large Pease, particularly the Egg and Marrowfat, let the drills be made to the depth of four inches, and one foot the distance between the first two or double drill, and between each double drill, let there be a space of seven feet, or more, where ground can be spared, as air and sun-shine greatly contribute to their well-bearing, and this distance gives room for gathering the pods from the higher branches, without injuring the haulm. Your drills being ready, and your distances laid out, you must provide yourself with the following compost, that is, one part of well-rotted dung, and two parts of un-slacked lime, well wrought together; this for a poor soil, as in a rich, the dung would make the Pease run too much to haulm: this is to be laid in the bottom of the drills, to the depth of two inches; but before you sow the seed, draw some of the garden mould lightly over this compost; this will protect the seed from its heat and first fermentation, but by the time the Pea sends its fibres into it, it will be sufficiently meliorated, and contribute greatly to the success of the crop. In good soils, a light sprinkling of lime only is necessary, observing always so to manage your drills, that the last covering of the Pease shall be no more than two inches deep. Turf-ashes, such as have been preserved under cover, and mixed with lime, in this proportion, *viz.* one shovelful of ashes to two of lime, to be laid two inches deep in the drills, will give fine crops of large Pease. The seed of the large Pea is to be sown at the distance of one inch, Pea from Pea, and then to be covered with the garden-mould, to the depth above directed. The two first landings of the Pease in the double drill are to be drawn from the one-foot space between the rows, and the third, before staking, from the two outer sides, and so much mould is to be laid in from them, as will fill the inside, to rise above the former landings; that is,

is, the whole is to form one ridge, whose centre rises between the two close rows. Observe, that Pease are to be landed when the soil is dry, and for the first landing, must be two inches and an half high; for the second, three more; and, when staked, about five from the ridge. The stakes for these Pease must not be less than eight feet above ground, the first row of which is to pass in the centre of the one-foot distance, and these to be the tallest, and most bushy: there must also be a row on each of the other two sides.

Where these great distances between the double rows cannot be spared, there may be two rows of Beans.

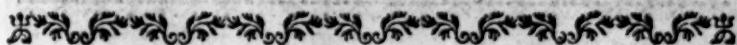
In order to have your crops of Pease in succession, particularly the Marrowfat, the Egg-Pea, and the Glory of *England*, as they hold long, and eat well, though somewhat old, make plantations of them about the first of the month, from *January* to *June*, both inclusive; and as vermin, particularly mice, are very destructive to the early crops, from the great scarcity of food at this season, I would recommend traps to be laid for them, on the first sowing of the Pease, which are of a very simple construction, being no other than two small uprights, sufficiently strong to support a brick laid on a thread, passing from the tops of the uprights, first passing it through a Bean, which the vermin soon find out, and attack, so as to cut the thread, when the brick falls and crushes them to death: this is necessary to be done, before they find out your Pease.

By the end of *May* sow all dwarf Pease, such as the dwarf Marrowfats, short and long podded Dwarfs, Leadman's prolific Dwarf, and the dwarf Sugar-pea, particularly in very poor soil, and at a good distance, row from row, and Pea from Pea; for when this sort is sown upon fat land, or thick together, a vermin particularly fond of them are their destruction, before they can perfect their crops. The Sugar-Pease have no inner film in their pods, as all other Pease have, and are remarkable for this singularity in their growth.



PURSLAIN.

BOTH the green and the golden Purslain are equally fit for use, though the green is preferred by the market-gardeners. To have it early, you may sow it in *March*, upon a moderate hot-bed; and about the end of *May*, transplant it into a rich bed in the open ground; and, as it will grow very large, give it half a foot distance, plant from plant. In *May* it may be sown in the open ground, and in six weeks it will be fit for use; in dry weather it must be well watered; before you sow it, water the ground well, and sow the seed thin, giving it a thin covering with a rake, and in dry weather be careful to water it, until the plants appear. Purslain makes a good pickle.



RADISHES.

The common sorts of Radishes are,

- 1 Early Salmon.
- 2 Richmond.
- 3 Sandwich.
- 4 Short-topped early London.
- 5 Black and White Spanish.

THE best of these Radishes is the short-topped early *London*, as it is very hardy, and its small tops do not prejudice any other crop with which it may be sown. They may be sown in *January*, on a wall-border, of a sandy soil, or the beginning of *February*, with the Cabbage or Princess Lettuce, to have them in *March*; and it will be necessary to sow them once every fortnight, from that time until the beginning of *April*; but, excepting the two first sowings, they will do better in more open places. They may be sown amongst Carrots, as the drawing them gives the Carrot-beds a stirring, which

which is very advantageous to that root. Some sow Radishes in *August*, to come up in *September* and *October*, and others amongst their winter Spinage.

The *Sandwich* or *Princess* Radish, and the *Salmon* require the same culture with those already mentioned. The *Salmon* sort is so called from the resemblance of its colour to that of the fish.

The *White* and *Black Spanish* Radishes must be sown in *August*, and separately, as the first is eaten in *October*, and the other in winter. They are to be sown upon middling kitchen-garden ground, trenched, and well spaded at sowing, to allow their roots to settle well; with them you may sow a few of the brown *Dutch*, and *Capuchine* Lettuces, to be transplanted into warm borders. The *Black Radish* should be taken up in *November*, to be preserved in dry sand as you do Carrots.



RADISHES (THE TURNIP.)

THE Turnip Radish is to be sown in *February* and *March*, and, as they are hardy, they will be fit for use in *April* and *May*, but no longer, being apt to fly; and this crop I would chuse to sow by itself. The ground for these Radishes must be well trenched, and immediately before sowing to have a deep spading, that their roots may have scope to run down, otherwise they will stunt and become good for nothing.



ROSEMARY.

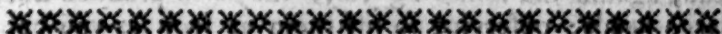
For the propagation and cultivation of this plant, follow the directions given for BALM OF GILEAD.



S A L I S A F Y.

THE culture of this root and SCORZONERA being much the same, I shall treat of them together.

The best way to have them in perfection, is, to sow their seeds about the middle of *March*, in beds four feet broad, and in four rows, which are to be laid out with a line, then sow two or three seeds, in holes, at eight inches distance from one another, covering them. When they come up, keep them very clear from weeds; and thin their roots to two in each hole, taking care that the soil has been well dug, that their taper roots may easily descend and swell. In *October* they will be fit for use; they are first boiled, and then sliced long-ways, when you are to fry them with butter and flower, they not only eat well, but are also very wholesome. The young stalks or sprouts of these plants which remain in the ground until *April* or *May*, are esteemed a very delicate dish, and may be used as you do Asparagus.

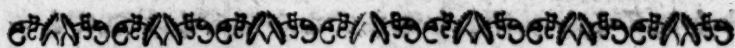


S A V O Y S.

THE Green Savoy for an early crop (that is, such as become large in *October* or *November*) should be sown in *July* of the preceding summer, and may be put out into nursery-beds in *October*, where they may stand the winter, and in *March* should be planted out for good, at two feet and a half distance every way, in some open piece of ground, neither near hedges, nor under drops of trees, where they are very subject to spire, and are often attacked by vermin.

You may also sow Savoy in *March*, for the following spring use; and by managing them as I have just directed, will do well.

S C A L



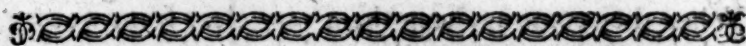
SCALLION.

SEE ESCALLION, or CHIVES.



SCORZONERA.

SEE SALSIFY.



SHALLOTS.

Shalots are taken out of the ground in *July*, as soon as their blades begin to wither: their large heads are best for use, but for planting, take their smallest single cloves, with good bottoms for pushing out their fibres; plant them, about the middle of *August*, in beds of fresh, rich, sandy soil, at six inches distance, clove from clove; and, against the following *July*, they will produce fine, large heads; observing to lift them as soon as you perceive the tops of their blades to turn yellow. Do not, on any account, defer planting until spring, and be sure to use no other than single cloves for that purpose

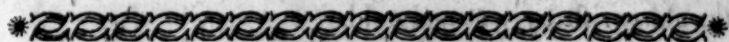


SKIRRETS.

THE Skirret, which is one of the best kitchen-garden roots, has of late been much neglected, from the general ignorance of their cultivation. My method is as follows:

Their seed is to be sown the beginning of *March*, on a moist rich soil, (having ridged and dressed it fine in *October*, that the winter's frost might mould it) on beds five feet broad, and in holes six inches distance every way: in these I dropt three or four seeds, covered them carefully, and kept them free from weeds. When they
come

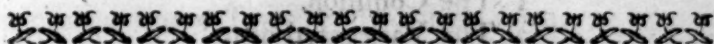
come up, should the spring or summer prove dry, they are to be plentifully watered, and should any of them attempt to run or fly to seed, cut them down to within two inches of the ground, laying some of the earth in the alleys over the beds, being first well worked with the spade, this being the best method to keep their roots in a growing state, cool and tender. As their leaves drop in *October*, the holes are to be marked, for the greater certainty of taking them up without wounding their roots. The Skirret is no where so well preserved as in the bed, which is to be protected from the winter's violence by litter.—Be sure always to raise them from seed.



S O R R E L.

THE *French*, or round leaved Sorrel is the best, and is propagated by seeds sown in *August*, or from slips planted at one foot and a half distance, plant from plant (as it is a great runner) in a good middling soil, and in an open situation, or upon a south-east aspect wall, to have it early. In summer, when you perceive the plants running up to seed, suffer them to run three inches high, and then cut them down close, by which means the plants will push out new leaves and heads for fresh plantations in autumn.

The great broad-leaved Sorrel comes in earlier than the *French*, and is cultivated in the same manner, except to have a greater distance, as the leaves are larger.



S P I N A G E.

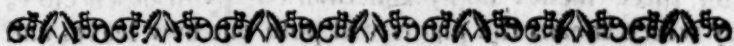
The best Sorts are,

- 1 The Prickly, for winter. And,
- 2 The Broadest Leaved, for summer.

THE most proper time for sowing the prickly small-leaved Spinage for winter use, is from the 20th of *July* to the 12th of *August*, and in drills, rather than in

in the field way, as it will be much easier cleared of weeds. This sort may have some of its largest leaves crott off in *October* and *November*, and may be used through the winter, but must be then cut sparingly; for if it is too much cut, or too near the stalks, it will then be in danger of rotting by the frosts in *January* and in *February*: wherefore use it sparingly, and it will continue good until *May*, when the large-leaved Spinage succeeds to it. Care must be taken, when sowing the Spinage-seed, that the ground is not too dry; for if the weather be very dry in autumn, it will come up with the seed-vessels on its top, whereby it will be of little use; nor should it be sown on too moist ground at this season, lest it should perish by wet and cold.

The summer Spinage is to be sown about the latter end of *February*, and from that time every fortnight until the beginning or middle of *April*, for a succession, and in moist ground, to prevent its running to seed, to which both these kinds are very apt. With the spring Spinage you may sow a few early short-topped *London Radishes*. This sort, on account of its large leaves, must stand ten inches distance, plant from plant. The seeds of the largest kinds of Spinage are smooth, which distinguishes them from the small-leaved prickly sort.



T H Y M E.

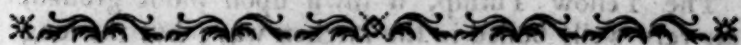
The sorts that are cultivated in gardens, are,

- 1 The Common.
- 2 The Variegated ditto.
- 3 The Lemon.

THE first sort may be sown in the spring, upon a lean dry soil, in which it will thrive better than upon any other, and continue good for many years.

The two last sorts are propagated from runners or slips planted in the spring, in almost any soil; where watering and shading them until you perceive them take root, is all the culture they require.

T U R-



TURNIPS.

The common sorts used here, are,

- 1 The Early Round White *Dutch*.
- 2 The Yellow Turnip.
- 3 The Long *French* Turnip or *Naveau*.
- 4 The Green *Dutch*.

THE first is chiefly used in this country for early crops, and for eating raw in *May* and *June*, of which many are very fond. To have them very early is a great ambition amongst gardeners: In sandy grounds you may succeed very well by sowing them in *February* to pull in *May*; but their beds are to be matted. As soon as they appear with five leaves, it will be proper to thin them, which is all the culture they require; and the fresher and more virgin the earth is, the sweeter and more tender they will be. I would recommend the beds for these early crops to be no more than four feet broad, for the better management of them. If the weather is very dry in *March* or *April*, give them water twice a week, and at six in the morning; for should you water them at night, the frost might kill them; and in sun-shine their leaves would be scorched. If you perceive the black fly to attack them, lay in some unslacked lime or beer-chaff below their tops, and water them well at the hour just mentioned, and this will effectually destroy them.

In clay grounds, sow a few beds of them pretty thick; and, as soon as you observe them above ground, matt them at night, removing the covering in the day, to give them air; and, unless the season be very dry, be sparing of your water in this soil, observing not to sow them upon dunged land.

The second season for sowing is from *April* to *August*, after which time no Turnips should be sown, and then beware of the black fly.

Q

The

in the field way, as it will be much easier cleared of weeds. This sort may have some of its largest leaves cropt off in *October* and *November*, and may be used through the winter, but must be then cut sparingly; for if it is too much cut, or too near the stalks, it will then be in danger of rotting by the frosts in *January* and in *February*: wherefore use it sparingly, and it will continue good until *May*, when the large-leaved Spinage succeeds to it. Care must be taken, when sowing the Spinage-seed, that the ground is not too dry; for if the weather be very dry in autumn, it will come up with the seed-vessels on its top, whereby it will be of little use; nor should it be sown on too moist ground at this season, lest it should perish by wet and cold.

The summer Spinage is to be sown about the latter end of *February*, and from that time every fortnight until the beginning or middle of *April*, for a succession, and in moist ground, to prevent its running to seed, to which both these kinds are very apt. With the spring Spinage you may sow a few early short-topped *London Radishes*. This sort, on account of its large leaves, must stand ten inches distance, plant from plant. The seeds of the largest kinds of Spinage are smooth, which distinguishes them from the small-leaved prickly sort.



T H Y M E.

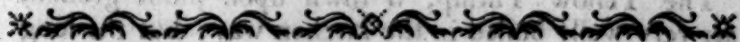
The sorts that are cultivated in gardens, are,

- 1 The Common.
- 2 The Variegated ditto.
- 3 The Lemon.

THE first sort may be sown in the spring, upon a lean dry soil, in which it will thrive better than upon any other, and continue good for many years.

The two last sorts are propagated from runners or slips planted in the spring, in almost any soil; where watering and shading them until you perceive them take root, is all the culture they require.

T U R-



TURNIPS.

The common sorts used here, are,

- 1 The Early Round White *Dutch*.
- 2 The Yellow Turnip.
- 3 The Long *French* Turnip or *Naveau*.
- 4 The Green *Dutch*.

THE first is chiefly used in this country for early crops, and for eating raw in *May* and *June*, of which many are very fond. To have them very early is a great ambition amongst gardeners: In sandy grounds you may succeed very well by sowing them in *February* to pull in *May*; but their beds are to be matted. As soon as they appear with five leaves, it will be proper to thin them, which is all the culture they require; and the fresher and more virgin the earth is, the sweeter and more tender they will be. I would recommend the beds for these early crops to be no more than four feet broad, for the better management of them. If the weather is very dry in *March* or *April*, give them water twice a week, and at six in the morning; for should you water them at night, the frost might kill them; and in sun-shine their leaves would be scorched. If you perceive the black fly to attack them, lay in some unslacked lime or beer-chaff below their tops, and water them well at the hour just mentioned, and this will effectually destroy them.

In clay grounds, sow a few beds of them pretty thick; and, as soon as you observe them above ground, matt them at night, removing the covering in the day, to give them air; and, unless the season be very dry, be sparing of your water in this soil, observing not to sow them upon dunged land.

The second season for sowing is from *April* to *August*, after which time no Turnips should be sown, and then beware of the black fly.

Q

The

The Yellow Turnip, if sown upon moist ground, eats very well, boiled in the kitchen way; but the long *French Turnip* is the best for seasoning soups, as two of them will give a higher flavour than a dozen of other Turnips, and are not of any use for any other purpose. They are to be sown about the middle of *April*.

The Green *Dutch Turnip* may be sown in the broadcast; and as their culture is no other than what has been directed for the other sorts, nothing more need be mentioned, but to weed and thin them at proper seasons.

In our Seed-catalogue you will find a variety of Turnips, but chiefly for husbandry use, and now much used in spring for cattle.

THE END OF THE FIRST PART.

PRACTICAL

PRACTICAL INSTRUCTIONS

I N

G A R D E N I N G.

PART SECOND.

F L O W E R S.

PRactical INSTRUCTIONS

I IN

GARDENING.

PART SECOND.

FLOWERS.

229

An ALPHABETICAL List of
FLOWER SEEDS and ROOTS;
SEEDS of TREES and FLOWERING SHRUBS;
SEEDS for the Improvement of LAND;
 With a COLLECTION of
AMERICAN TREE SEEDS:
 Directing the SEASON of PLANTING them.

- (*) *Such as should have their Seed sown the Spring after they are saved.*
 (+) *Such as should be sown in Autumn, immediately after their Seeds are ripe; otherwise if kept until the Spring, they will not appear before the Spring following.*
 (†) *Such whose Seed will keep two Years, if well saved; though equally fit for use the first Year.*

N. B. *Where the Letter h is added, directs to be raised on Hot-beds; bh in Boxes to be placed in the Hot-bed; b in Boxes; op in the open Ground; and p in Pots.*

FLOWER SEEDS.

- | | |
|----------------------------|-----------------------------|
| † Adonis, | <i>April and September.</i> |
| * African Marygold, h. | <i>March and April.</i> |
| * Amaranthoides, white, h. | <i>March and April.</i> |
| ———, purple, h. | <i>March and April.</i> |
| † Amaranthus, h. | <i>April.</i> |
| * ——— Cockscorn, h. | <i>March and April.</i> |
| ——— Globe, h. | <i>March.</i> |
| ——— Purpureus, | <i>April.</i> |
| ——— Tree, | <i>April.</i> |
| ——— Tricolor, h. | <i>March and April.</i> |
- Q 3 * Anemone,

- † Anemone, or Wind-flower, *November.*
 Apple Love, h. *March.*
 Aster China, double, *April.*
 ————, single, *April.*
 † Auricula, *Jan. Feb. Sept. and Nov.*
 Balsam, double striped, h. *March and April.*
 * Balsamine, h. *April.*
 Beans, scarlet flowering, h. *February and April.*
 Bell-flower, Canterbury, *April.*
 * Blue-bottles, *March.*
 Bottle-flower, or Cyanus, *March and August.*
 * Borage, plain and striped, *April.*
 Campion Rose, *March.*
 * Candy-tuft, white, *March.*
 ————, purple, *March.*
 * Canterbury Bell-flower, *April.*
 Capsicum Indicum, many } *April.*
 kinds, h. }
 * Carnation, Dutch, *April.*
 ————, English, *April.*
 ————, French, *April.*
 ————, Indian Lupines, *March.*
 ————, Poppy, with se- } *April.*
 veal other sorts. }
 Carthamus, *April.*
 * Catchfly, Lobel's, *April.*
 China Aster, double, *April.*
 ————, single, *April.*
 ————, Mallow, h. *March.*
 Chrysanthemum, double, *March.*
 * Clary, *March.*
 Cockscornb Amaranthus, h. *March and April.*
 † Colchicum or bastard saffron, *November.*
 * Columbine, Virginian, *July and March.*
 † Convolvulus, *April.*
 * ———— Major, scarlet, *March and April.*
 ———— Minor, scarlet, *March.*
 ———— Major, blue, *March.*
 ———— Minor, blue, *April.*
 † Corn Gladiolus or Corn-flag, *September.*
 * Cress, Indian, *April.*
 † Crocus Vernus, *July.*

† Crown,

- | | |
|--|----------------------|
| † Crown, Imperial | September. |
| Cyanus, or Bottle-flower, | March and August. |
| † Cyclamen, or Sow-bread, | March and September. |
| * Dame's Violet, or Hesperis, | April. |
| † Delphinium, great, | April. |
| Diamond Ficoides, h. | April. |
| Dutch Carnation, | April. |
| English Carnation, | April. |
| Everlasting Pea, | April. |
| Flos Adonis, | March and August. |
| † Flower-de-luce, or Iris, | September. |
| † Flowering Reed, Indian, h. | April. |
| † Fraxinella, | September. |
| French Carnation, | April. |
| † Frittilaries, | September. |
| † Gentian, | September. |
| Globe Aramanthus, h. | March. |
| † Golden Rod, | April. |
| Greek Valerian, | March. |
| † Hare's-ear, | October. |
| † Hart-worth, | October. |
| * Hawkweed, crimson, h. | March. |
| * Hieraciums, or Hawkweeds | August. |
| * Holyhock, double, | April. |
| Honesty, or Moonworth, | March. |
| * Honeysuckle, French, | March and April. |
| Humble Plant, h. | April. |
| † Hyacinth, | October. |
| † Indian flowering Reed, h. | April. |
| Indian Lupines, carnation, | April. |
| —————, great blue, | April. |
| * Indian Pink, h. | April. |
| † Iris, or Flower-de-luce, | September. |
| † La Lucern, | April. |
| Larksheel, double, with
many colours, | } August and March. |
| * Lark's-spur, | February and March. |
| * Lavatera, red, | March. |
| —————, white, | March. |
| † Lavender, | April. |
| † Lilly Hyacinth, | October. |

232 The GARDENER'S NEW DIRECTOR.

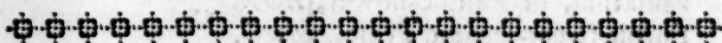
- * Linarias, *April.*
- * Lobel's Catchfly, *March.*
- * Looking-glass, Venus, *April.*
- * Lotus, *April.*
- Love Apple, h. *March.*
- Love lies-bleeding, *March.*
- * Lupines, carnation Indian, *April.*
- , great blue Indian, *April.*
- , small blue, *March.*
- , yellow, *March.*
- , great scarlet, *March.*
- , white, *April.*
- Lychnis, scarlet, *April.*
- Mallow Tree, *March.*
- , China, h. *March.*
- Marvel of Peru, h. *March.*
- Marygold, sweet-scented, *April.*
- * ———, French, *April.*
- , African, *April.*
- , Quild, *April.*
- , Campvere, *March.*
- * Medica, or Snails, *April.*
- † Melilot, *April.*
- Melongena, or Egg-plant, h. *March.*
- Mignonet, or sweet Resida, *March and April.*
- Millet, *April.*
- † Moly, *April and October.*
- Moonworth, or Honesty, *March.*
- * Moth-mullen, *March.*
- † Muscary, *October.*
- † Narcissus, *October.*
- † ———, Daffodil, *September.*
- † ———, Oriental, *October.*
- * Navelworth, Venus, *April.*
- Nigella Romana, *April.*
- * Onagra, or Tree-primrose, *March.*
- † Ornithogulum, or Star of } *September.*
- Bethlehem,
- † Pasque Flower, or Pulsatilla, *April and October.*
- * Pease, everlasting, *April.*
- , painted Lady, *March.*
- , purple sweet-scented, *April.*

Pease

- Pease, scarlet flowering, *March.*
 —, white sweet-scented, *April.*
 —, *Tangier*, *April.*
 * Pepper, Indian, h. *April.*
 Perficaria, *March and September.*
 † Phalangium, or Spiderwort, *October.*
 * Pinks of all sorts, *April.*
 * Pink, Dutch, double, *April.*
 —, Indian, h. *April.*
 —, Pheasant Eye, *March.*
 † Piony, *April.*
 Plant, sensitive, h. *March.*
 —, humble h. *April.*
 Polyanthus, *February, March and Aug.*
 † —, or Primula Veris, *February and August.*
 * Poppy, Carnation, with } *March.*
 fundry other sorts, }
 * Primrose-tree, or Onagra, *March.*
 Princes-feather, *March.*
 Pulsatilla, or Pasque-flower, *April.*
 Purple sweet-scented Pease, *April.*
 — Candy-tuft, *March.*
 † Ranunculus, *November.*
 Romana Nigella, *April.*
 Rose Campion, *March.*
 * Scabius, *April.*
 Scarlet flowering Pea, *March.*
 ———— Bean, *February and April.*
 Sensitive Plant, h. *March.*
 * Snails, or Medica, *April.*
 * Snap-dragon, *April.*
 † Sow-bread, or Cyclamen, *March and September.*
 † Spiderwort, or Phalangium, *October.*
 † Star of Bethlehem, or } *September.*
 Ornithagulum, }
 † Stock-jellyflowers, if kept } *April and May.*
 in the seed pods. }
 —, Brumpton, *April and July.*
 —, Queen, *April and July.*
 —, striped, *April and June.*
 —, purple, *April and June.*
 —, white, with } *April.*
 fundry other sorts, }

Striped

- Striped Balsam, double, h. *March and April.*
 * Sultan, sweet, *April.*
 —, yellow, h. *April.*
 * Sunflower, double, *March.*
 Sweet Scabius, *April.*
 — Sultan, yellow, h. *April.*
 — William, *March and August.*
 Tangier Pease, *April.*
 Tree Mallow, *March.*
 † Tulips, *September.*
 Valerian, Greek, *March.*
 * Venus' Looking-glass, *March and April.*
 Virginian Columbine, *July and March.*
 * Wall-flower, white, *April.*
 —, bloody, *April.*
 White Candy-tuft, *March.*
 — sweet-scented Pea, *March.*
 Xeranthemum, purple, *August and September.*



FLOWER ROOTS.

- Anemonies, many sorts, *October, January and Feb.*
 Hyacinths, double, many } *October, November and*
 colours, } *December.*
 Jonquils, double, *October and November.*
 Iris, Persian, *October and November.*
 Italian Tuberoses, h. *March, April and May.*
 Persian Iris, *October and November.*
 Polyanthus Narcissus, } *October and November.*
 many sorts, }
 Ranunculus, many sorts, *January, February and Oct.*
 Snow-drops, double, *October and November.*
 Tuberoses, Italian, *March, April and May.*
 Tulips, many sorts, *October and November.*

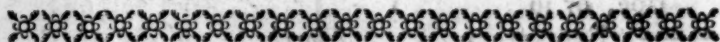
SEEDS

SEEDS of TREES and FLOWERING SHRUBS.

Acorns, great oak, when ripe, or in	} February and March.
——, Evergreens,	March.
Arbutus, or Strawberry- tree, b.	} March.
After Pine,	March.
Balm of Gilead Fir,	March and April.
Beech Mast,	February, October and Nov.
Birch,	March.
Bladder Sena, or Collutea, b.	March.
Broom, Spanish,	March.
Cedar of Lebanon, b.	March and April.
Chestnut, horse,	February and March.
——, sweet,	February and March.
Collutea, or bladder Sena, b.	March and April.
Crab kernels,	February and March.
Cypress Fir, b.	March.
Elm,	June.
Evergreen acorns,	March.
Fir, Cypress, b.	March.
——, Red Scots,	March, April and May.
——, Silver,	March.
——, Spruce or Pitch,	March.
Haw-berries,	February.
Holly-berries,	February.
Hornbeam,	February, September and Oct.
Horse Chestnut,	February and March.
Laburnum,	March.
Larix, b.	April.
Lime Tree Berries,	May.
Pine, New England,	March and April.
Pine, After,	March.
——, great,	March.
Pitch, or Spruce Fir,	March.
Pyracantha,	February and March.
Scots red Fir,	March, April and May.

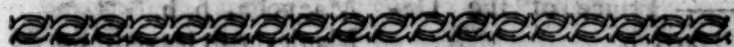
Silver

Silver Fir,	<i>March.</i>
Spanish Broom,	<i>March.</i>
Spruce, or Pitch Fir,	<i>March.</i>
Sweet Chesnuts,	<i>February and March.</i>
Walnuts,	<i>February and March.</i>
Yew Berries,	<i>February, September and Oct.</i>



SEEDS for improving LAND.

Buck Wheat,	<i>April and May.</i>
Canary Seed,	<i>April.</i>
Clover, great red English,	<i>April and May.</i>
——, great red Dutch,	<i>April and May.</i>
——, whitedwarf Dutch,	<i>April, May and August.</i>
——, yellow, or Trefoil,	<i>May.</i>
Dutch great red Clover,	<i>April and May.</i>
—— dwarf white clover,	<i>April, May and August.</i>
English great red Clover.	<i>April and May.</i>
—— Rye-grafs,	<i>April and May.</i>
French Furze,	<i>March and April.</i>
Hemp Seed,	<i>June and July.</i>
Irish Whins,	<i>March.</i>
La Lucerne,	<i>April and May.</i>
Lint Seed,	<i>April and May.</i>
Maw Seed,	<i>May.</i>
Rape Seed,	<i>June and July.</i>
Rye Grafs, English,	<i>April and May.</i>
——, Scots,	<i>April and May.</i>
Saint Foin,	<i>April.</i>
Scots Rye Grafs,	<i>April and May.</i>
Trefoil, or yellow Clover,	<i>May.</i>
Wheat, Buck,	<i>April and May.</i>
Whins, Irish,	<i>March.</i>
White dwarf Dutch clover,	<i>April, May and August.</i>
Yellow Clover, or Trefoil,	<i>May.</i>



AMERICAN TREE SEEDS,

To be sown in the SPRING.

- | | |
|-----------------------------|-----------------------------|
| Alder, American, op. | Broad-leaved Andromeda, |
| —, silver-leaved, op. | or flowering Sorrel Tree, |
| —, Virginian, op. | b. h. |
| Alternate two and three | — Mountain Elm, op. |
| leaved Pine, op. | — Viburnum, op. |
| American narrow leaved | Button Tree, or Cephalan- |
| Thorn, op. | thus, b. |
| — Alder, op. | Cedar, red, b. |
| Andromeda, broad leaved, | —, white, b. |
| or flowering Sorrel Tree, | Cephalanthus, or Button |
| b. h. | Tree, b. |
| —, red budded, b. h. | Chameradodendron, Bog- |
| Aralia Spinosa, or Tree An- | gy, b. |
| gelica, b. h. | —, great, b. |
| Arbor Lotus, op. | —, Ivy, b. |
| Arborescens Seneas, h. | —, Olive-leaved, b. |
| Ash-leaved Maple, op. | —, Thyme-leaved, b. |
| —, black, op. | Champion Oak, the Bas- |
| —, white, op. | tard, op. |
| Beam, Hophron, op. | —, black, op. |
| Beech Sumach, b. | —, great, |
| —, Virginia, op. | Chestnut Virginian Oak, op. |
| Benjamin Tree, b. | — Swamp Oak, |
| Birch, the sweet black, op. | Clethra, with beautiful |
| —, Popler leaved, op. | flowering Spikes, b. h. |
| Black Champion Oak, op. | Cluster Cherry, op. |
| — Dwarf Oak, op. | Cornelian Cherry, or white |
| — Larix, b. | berried Cornus, op. |
| — Mulberry, op. | Cornus, great red Moun- |
| — round Walnut, op. | tain, op. |
| — Spruce Fir, b. | Culmina, red flowering, b. |
| Boggy Chameradodendron, | —, white flowering, b. |
| b. | Dogwood, b. |
| Bread, St. John's, or Honey | Downy Sumach, b. |
| Loney, b. h. | Dwarf, |

- Dwarf, black Oak, op.
 — Prince of the Desert, b.
 — scarlet Oak, op.
 Elm, broad leaved Mountain, op.
 Evergreen Euonymus, op.
 — Privet, op.
 — Rhamus, b.
 — Shrub Hypericum, b.
 Euonymus Scandens, op.
 —, great broad leaved, op.
 Fir, Virginian Silver, op.
 —, black Spruce, b.
 Fringe, or Snow-drop Tree, b. h.
 Great broad leaved Euonymus, op.
 — Chamerododendron, b.
 — Champion Oak, op.
 — red Mountain Cornus, op.
 — Silver-leaved Maple, op.
 Gum, the sweet, b.
 Honey Loney, or St. John's Bread, b. h.
 Hophorn Beam, op.
 Hypericum evergreen Shrub, b.
 Jersey Pine, the rough, op.
 — Tea, b.
 Itea, b. h.
 Judas Tree, b.
 Ivy Chamerododendron, b.
 Larix, black, b.
 Lesser Spanish Oak, op.
 Linden, op.
 Locust, sweet smelling, b. h.
 Long white Walnut, op.
- Lotus Arbor, op.
 Magnolia, b. h.
 Maple, Ash leaved, op.
 —, great Silver leaved, op.
 —, dwarf Mountain, op.
 —, striped, op.
 —, Sugar, b.
 —, Virginian, op.
 Minor Zanthoxylum, b. h.
 Mountain Elm, broad leaved, op.
 Mulberry, black, op.
 Myrtle, Virginian, b.
 Oak, black Ash, op.
 —, black Champion, op.
 —, black Dwarf, op.
 —, bastard Champion, op.
 —, great Champion, op.
 —, lesser Spanish, op.
 —, shrubby white, op.
 —, scarlet Dwarf, op.
 —, Spanish Swamp, op.
 —, Swamp Chesnut, op.
 —, Virginian Chesnut, op.
 —, white, op.
 —, Willow, op.
 Olive-leaved Chamerododendron, b.
 Papaw, b. h.
 Pine, alternate, two and three leaved, op.
 —, the Dwarf of the Desert, b.
 —, two and three leaved Swamp, op.
 —, rough Jersey, op.
 Poplar-leaved Birch, op.
 Prinos, b.
 Privet, evergreen, op.
 Red budded Andromeda, b. h.

- Red Cedar, b.
 — flowering Culmia, b.
 — four-fruited Viburnum, b.
 Rhamus, evergreen, b.
 Rose Marsh, op.
 —, sweet Mountain, b.
 Rough Jersey Pine, op.
 Round black Walnut, op.
 Sassafras, b.
 St. John's Honey Loney, b. h.
 Scarlet Dwarf Oak, op.
 Seneas Arborefcens, h.
 Serrated-leaved Viburnum, b.
 Shrub, the evergreen Hypericum, op.
 Shrubby white Oak, b.
 Silver leaved Alder, op.
 — Fir, Virginian, op.
 Snow-drop Tree, or Fringe, b. h.
 Sorrel Tree, the flowering, or broad leaved Andromeda, b. h.
 Spanish lesser Oak, op.
 Spiney Viburnum, b.
 Spinosa, Aralia, or Tree Angelica, b. h.
 Spirca, purple, b.
 —, Opula Folio, b.
 —, white, b.
 Spruce Fir, black, b.
 Striped Maple, op.
 Sumach, Beech, b.
 —, Downey, b.
 —, Virginian, b.
 —, or Tupelo, h.
 Swamp Pine, the three leaved, op.
 —, Chesnut Oak, op.
 Swamp, Spanish Oak, op.
 Sweet black Birch, op.
 — Gum, b.
 — Mountain Rose, b.
 — smelling Locust, b. h.
 — Service early, b.
 Tea, Jersey, b.
 Three leaved Swamp Pine, op.
 Thorn, narrow leaved America, op.
 Toxicodendron foliis pendulis, b.
 — trifolium, b.
 Tree Angelica, or Aralia Spinosa, b. h.
 —, Benjamin, b.
 —, Button, Cephalanthus, b.
 —, Judas, b.
 Tulip Tree, b. h.
 Viburnum, broad leaved, op.
 —, red four fruited, b.
 —, round leaved, b.
 —, serrated leaved, b.
 —, Spiney, b.
 Virginian Alder, op.
 — Beech, op.
 — Sumach, b.
 — Silver Fir, op.
 Walnut Hicory, op.
 —, long white, op.
 —, round black, op.
 White Ash, op.
 — berried Cornus, or Cornelian Cherry, op.
 — Cedar, b.
 — Oak, op.
 — Oak, shrubby, b.
 Willow Oak, op.
 Zanthoxilum minor, b. h.

Christmas



An ALPHABETICAL LIST of FLOWERS,

Whose Culture is directed by Sir James Justice, Bart.

be having given them in the Order they appear in the Seasons.

N. B. The Numbers that are expressed by Letters, have a Reference to the Treatise, coming before the Work.

A BBREVIATIONS of the botanical Names	
used in the Catalogue of Annuals, &c.	354
Aconite, the Winter, — — —	246
Anemone, — — —	339
Annuals and Perennials, a most curious Collection of, as given in the Dutch Catalogues, — — —	347
—, as botanically called, with Directions for their Culture, — — —	356
—, the same with their English Names in an Alphabetical Order, — — —	415
Auricula Ursa, or Bear's Ear, — — —	313
—, Compost for, — — —	v
—, Mr. Bullen's Management of them, — — —	319
—, some general Directions by Mr. Miller, — — —	323
Bear's Ear, or Auricula Ursa, — — —	313
Bulbous Iris, — — —	430
Cardinal Flower, — — —	310
Carnations, — — —	424
—, Compost for, — — —	xi
Christmas Rose, or Black Hellebore, — — —	245
Colchicum, Vernal, — — —	259
Colchicums, the early, — — —	432
Compost Yard, Directions for, — — —	434
Corn Flax, — — —	432
Crocus of the Spring, or Crocus Vernus, — — —	253
Crown, Imperial, — — —	262
Cyclamen, or Sow-bread, — — —	258
Daffodills, or Pseudo-Narcissus, — — —	255
Dens Canis, or Fritillaries, — — —	259
Directions to Florists, some general ones, — — —	433
Dragon, or Dracunculus — — —	ib.
Frames, for the Preservation of the Auricula, — — —	317
—, a double glazed one, for tender Plants, — — —	359
Fritillaries, or Dens Canis, — — —	259
R	Gladiolus,

244 The GARDENER'S NEW DIRECTOR.

Gladiolus, or Corn-flags,	—	—	432
Hellebore, Black, or the Christmas Rose	—	—	245
Hepaticas, a Variety of them,	—	—	249
Hyacinth, Oriental,	—	—	263
Hyacinths,	—	—	293
—, Compost for,	—	—	vi
—, The <i>Dutch</i> ,	—	—	x
—, as practised by Mr. Geo. Voorhelm,	—	—	305
—, in Water,	—	—	308
—, some Particulars relative to them,	—	—	309
Iris, the <i>Persian</i> ,	—	—	254
Layers, Manner of laying them,	—	—	425
Lilies,	—	—	431
Lily, Daffodil,	—	—	433
Martagons,	—	—	432
Minionette,	—	—	310
Narcissus, Polyanthos,	—	—	311, 433
—, Autumnal,	—	—	432
Oriental Hyacinth,	—	—	263
Pinks,	—	—	429
Polyanthos Narcissus,	—	—	311
Primrose,	—	—	251
Pseudo-Narcissus, or Daffodils,	—	—	255
Ranunculus,	—	—	340
Rocket Bastard,	—	—	310
Root-Room, form of one,	—	—	434
Sow-bread, or Cyclamen,	—	—	258
Snow-drops,	—	—	247
Sweet William,	—	—	429
Tulips, a fine Collection of,	—	—	324
—, the Compost for,	—	—	xi
—, Baguets,	—	—	325
—, Rigaut,	—	—	326
—, By-bloomen,	—	—	ib.
—, raised from Seed, as practised by Mr. Miller,	—	—	327
—, by Mr. Beulinz,	—	—	335
—, the Double,	—	—	338
—, manner of breaking their Breeders,	—	—	ib.
—, Bisard, a Collection of,	—	—	337
Winter Aconite,	—	—	246

Christmas



Directions for constructing Asparagus Beds.

IN order to make ready for this work, a compost is to be prepared, to consist of two parts of rotted dung, and a third of good mould and sand equally mixed, sea sand to have the preference.

The quarter intended for the bed, is to be cleared to the depth of two feet, (or deeper, according to your quantity of gravel or rubbish) then you are to lay down some coarse gravel or lime rubbish, to the depth of two inches at least (to take off any stagnated water) which is to be covered with a layer of coal-ashes to the same depth, and the cavity to be filled with rotted horse dung, well trod in, kept even and close, and to rise to the surface of the ground; over this you are to lay four inches of the compost, prepared as above directed, which is to be raked very smooth. The beds are then to be laid in breadths of four feet, with alleys of two feet between each, putting down markers to direct the planting, from which cords are to be strained, so as to divide the beds into squares of a foot each; in the centre of each square you are to set down a plant, spreading out its fibres, and six inches from the edge of the bed, the plants not to be more than two years old, and then you are to lay on the remainder of the compost to the depth of two inches. —For the care of the beds and your future practice see *Asparagus*, p. 184.

N. B. Great attention is to be paid to the choice of seed, for the raising of your plants, as only the very best can give such as are worth your care, and observe, never to suffer any thing to be planted on the surface, or in the alleys of the beds.

Christmas Rose, or Black Hellebore.

THE first flower which introduces the spring, is botanically named, *Helleborus niger, flore albo, interdum rubente*, J. B. It blows in mild winters before *Christmas*, and is very pleasing in the garden; it bears a rosaceous flower upon small stems, which arise about two inches or a little more from the ground, and has a faint, but very agreeable smell. This plant may be propagated by parting its roots in *August*, so as they may strike new root before winter, planting them where they may have the benefit of the winter's sun, to make them expand their blossoms early: some of them may be planted in a more shady situation, in which they prosper best of any. — They require a fresh earth, but not dunged; as it is apt to rot them. — They are also propagated from seeds, which should be sown in shady borders (but not under the droppings of trees, that being very prejudicial to all young plants.) In *June*, when the seeds are ripe, sow them; keep the bed clear from weeds, and they will come up the following spring. They may continue in their present situation until *March*, when they should be transplanted into the nursery-bed, where they are to flower, and in *June*, or in any of the summer months, plant them into borders or wilderness quarters, where they are to stand for good.

It is for this reason that I have advised the sowing and continuing to sow the seeds of the *Christmas Rose*, the *Winter Aconite*, the *White Hepatica*, and some other flowers, that if a double one should be raised of any of these flowers, which has never yet appeared, such an uncommon production will give pleasure, if not profit, for the labour and attention.

In the course of my process for flowers, I shall frequently direct the sowing the seeds of many flowers, as

S

from

THE CARPENTER'S NEW DIRECTOR

THE CARPENTER'S NEW DIRECTOR

THE CARPENTER'S NEW DIRECTOR

THE CARPENTER'S NEW DIRECTOR

THE CARPENTER'S NEW DIRECTOR

Christmas Rose, or Black Hellebore.

THE first flower which introduces the spring, is botanically named, *Helleborus niger, flore albo, interdum rubente*, J. B. It blows in mild winters before *Christmas*, and is very pleasing in the garden; it bears a rosaceous flower upon small stems, which arise about two inches or a little more from the ground, and has a faint, but very agreeable smell. This plant may be propagated by parting its roots in *August*, so as they may strike new root before winter, planting them where they may have the benefit of the winter's sun, to make them expand their blossoms early: some of them may be planted in a more shady situation, in which they prosper best of any. — They require a fresh earth, but not dunged; as it is apt to rot them. — They are also propagated from seeds, which should be sown in shady borders (but not under the droppings of trees, that being very prejudicial to all young plants.) In *June*, when the seeds are ripe, sow them; keep the bed clear from weeds, and they will come up the following spring. They may continue in their present situation until *March*, when they should be transplanted into the nursery-bed, where they are to flower, and in *June*, or in any of the summer months, plant them into borders or wilderness quarters, where they are to stand for good.

It is for this reason that I have advised the sowing and continuing to sow the seeds of the *Christmas Rose*, the *Winter Aconite*, the *White Hepatica*, and some other flowers, that if a double one should be raised of any of these flowers, which has never yet appeared, such an uncommon production will give pleasure, if not profit, for the labour and attention.

In the course of my process for flowers, I shall frequently direct the sowing the seeds of many flowers, as

S

from

from them only we can have the different sorts of every species; from seed the famous *Black Dutch Tulip* was raised, and the first *Double Hyacinth*: and though I may descend to the lowest of our flowers, yet, should a double one appear, the acquisition would not be trifling.

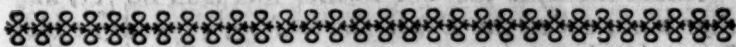


Winter Aconite.

THE *Christmas Rose* is succeeded by the *Winter Aconite*, botanically called *Aconitum Hyemale*. It hath a yellow flower; its leaves, which are of a vivid green colour, are deeply cut, and from the centre of the leaves arise the flowers, which expand in *January*, even when frosts and snow are upon the ground, and are then of a more beautiful colour, than in milder seasons; the seeds of this plant are ripe the beginning of *April*, and, so soon as you gather them, they ought to be sown in a good rich light soil, in pots or in boxes, to be exposed to the morning sun only. They will come up the following *December*, and, after their leaves are decayed, it will be proper to lay two inches of the same mould upon the pots or boxes, which will strengthen the young roots, and in three years after sowing, they will show their blossoms; observe not to transplant them from this seed-bed, until they are three years old; for neither the old roots, nor the seedlings, agree with being transplanted oftner than every third year. This work ought to be performed before their leaves are entirely faded; their roots, which are shaped somewhat like an *Anemone*, but smaller, being of a dark earthy colour, and of consequence difficult to find, after their leaves are quite faded.

They make a very agreeable appearance when they are planted in clumps, in long borders, intermixed with double and single *Snow-drops*, *Hepaticas*, *Donfoly*, the *Persian Iris*, and *Vernal Colchicums*, of which I shall treat under their respective names.

Snow-

*Snow-Drops.*

THE next flower that adorns the spring, is, the *Snow-drop*, of which there are four kinds; the *single*, or *lesser bulbous rooted* is by *Tournefort* botanically called *Narcisso-Leuconium minus*. It has a bright white flower, which comes up between its two plant leaves, and blows in *January*, even when there is frost and snow upon the ground. This plant is easily propagated by off-sets, provided it is not transplanted more than once in three years; it is therefore a very fit companion for the *Winter Aconite*; both of which I had a long bed planted in rows alternately, which made a very fine show.—This flower does not require a very rich soil, but fresh earth should be laid upon their beds about *Michaelmas*, before the frosts set in, which will greatly strengthen their roots for blowing fair the succeeding spring.

The most proper season for lifting them is about the end of *June* or beginning of *July*, when their leaves are decayed; then they may be laid up in their respective apartments in the root-room to dry, observing to clean their bulbs from earth, and any rottenness which may adhere to them, and to keep them dry, until the beginning of *September*, when they should be planted two inches deep, and at the distance of two only; for, as it is a small flower, the closer they are planted the better their appearance.

There is another kind of this flower, which is botanically called *Narcisso-Leucoium trifolium majus, luteis apicibus*, or *Great Snow-drop*; this is named in the *Dutch catalogues*, *Donfoly primalum*. It is larger than the former sort, and has a high musky scent, with some tips or spots upon the extremities of some of its petals; this sort is not so common as the other, but requires the same culture, and is not so great an increaser; it flowers about the beginning of *March*. It does not seed so freely as the other kinds.

About the time that the former sort is in flower, another kind, called the *Double Snow-drop*, expands its blossoms; it is botanically named, *Narcisso-Leucoium flore pleno minus*, Boerb. index. — This flower continues long in bloom, and makes a fine appearance with its double blossoms, the inner petals whereof are first of a green colour, tipped with white, and afterwards, as the flower advances, turns to a bright white. It has not so good a scent as that sort called in the *Dutch* catalogues *Donsoly*, for in all double flowers, the multiplicity of the petals or leaves of the flower, obstruct the organs of generation, in which the scent of the flower lies. They do not increase so fast as the single, but in all respects require the same culture.

The last kind of *Snow-drop* is called the *Greatest Snow-drop*, and botanically, *Narcisso-Leucoium altissimum, flore albo parvo, apicibus viridibus*, Boerb. index. I mention this flower here, because it is of the same class, though it does not flower until the month of *May*. It is a hardy plant, and its bulb is as large as a *Polyanthus Narcissus*: its seed-vessels contain a round seed, which, when ripe, is of a clear shining black colour, as big as the seeds of *Hyacinths*, and seem to promise, with proper care and industry, an agreeable variety of flowers, though hitherto I have not heard of any improvement of that kind. The number of its flowers upon one stalk never exceed three or four. They show well in borders, from their fine strong stem, and green leaves, when planted among other flowers of their time of blowing. Their culture is the same as directed for the smaller kind of *Snow-drop*.

Hepaticas.



Hepaticas.

Of these there are five sorts, viz.

1. The *Single White Hepatica*, botanically called, *Hepatica trifoliata*, flore albo simplici, Boerb. index.
2. The *Single Blue*, or, *Hepatica trifoliata*, flore cœruleo, Clusf.
3. The *Single Red*, or, *Hepatica trifoliata*, flore rubro, Clusf.
4. The *Double Red*, or rather peach-coloured, called *Hepatica trifoliata*, flore rubro pleno, Boerb. index.
5. The *Double Blue*, or, *Hepatica trifoliata*, flore cœruleo pleno, Clusf.

THE treatment of each of these is exactly the same. Their seed must be sown the beginning of *August*, in boxes on light fresh earth, exposing them to the morning sun only. In *November* the boxes are to be placed in a situation where they may enjoy the whole day's sun, to remain until the beginning of *March*, when I would replace them in their old situation. During the winter, in the evenings, and in great frosts, cover the boxes with mats, not so much from an apprehension that the frost would hurt them, but as at that season, when their seeds are germinating, it might stop their vegetation. It is a very hardy flower, and the young seedlings will begin to appear in *March*, when they ought to be carefully kept clear of weeds, and refreshed with water in hot dry weather. In this seed-bed they should remain two years, and after their leaves are gone, they should have some light virgin earth laid over them, which will greatly strengthen their roots. In the winter remove the boxes, in the same manner as you did after they were sown, and proceed with them the following spring as you did the preceding year. By the middle of *June*, they will be fit to be transplanted into beds of light fresh mould, (not much dunged) having previously arched the beds with hoops, to shade the plants from the sun, un-

til you perceive they have taken root: plant the seedlings four inches distant every way, putting the earth close to them as you plant them; keep them clear from weeds, and in *November* cover them to the depth of two inches from the alleys of the beds which will both strengthen them and prevent the frost or worms from throwing their young roots out of the ground: The succeeding spring, some of these seedlings will show flowers, which, if fine in colour, should be marked for the garden. Observe to keep them clear from weeds, and to cover them in *November*, as before directed. This is all the culture they require until *March*, when you should break the mould on the surface of the beds, and make it fine with your hands, in order to give them a fair appearance. The plants in this fourth year will be in full bloom; and it is then that their double flowers will appear, if there are any amongst them.

The *Hepatica* must not be transplanted oftener than once in three or four years, and, if allowed to continue fix, will make most charming clumps; whereas, if they are oftener transplanted, the roots will grow weak, and are apt to rot. But if by their vigour they should become too large, they may be parted from the mother roots in *March*, shading the new-planted off-sets, and refreshing them often with water, until they have struck fresh roots: by this means they will make a fine show in the spring, and often in the end of autumn, for many years.

The first sort seeds very freely, and no doubt from its seed was raised the *Double White Hepatica*, mentioned by Mr. Ray in his *Flora*, as a very fine flower, of which we have not any at present, and cannot expect to recover them, otherwise than by continuing to sow the seed, by which not only this flower may be restored, but a great variety may be acquired.

Primrose.

*Primrose.*

THE next flower I propose to treat of, is the *Primrose*. Of this there are two sorts; first, the *Primrose*, botanically called, *Primula veris*; which has but one flower, on a small slender stalk, unable often to support itself. The other, the *Polyantbus Primrose*, which bears many flowers upon one large erect stalk; it is called, *Primula veris Polyantbos*, because of its having many flowers upon one stalk.

The varieties which are obtained every year by the florists, who save and sow their seeds, are very great, and some incomparable beauties happen often to reward the trouble of sowing and cultivating them. As in this article I have had great success, I shall here give my method of treating them, from the sowing, until they flower.

I gathered the seed from the most vigorous plants, such as appeared well, and had the greatest number of flowers upon one stem, observing to water them very often in dry weather, from the time that the flower faded, until they were quite ripe, which is generally about the 25th of June; when their seed-vessels appear brown, and ready to burst, and the seed falling from the husk, they are to be looked over every day, that as little seed as possible may be lost.

As soon as the seed is gathered, which is by pulling off the bells that contain it, they are to be put into small paper bags, for the more conveniently drying; when you are to have ready some boxes, of a size to your pleasure, but they must be eight inches in the clear; to be filled with the following compost: To one load of well-rotted cow-dung, or leaves of trees, take half a load of fine white sand, and two of a fine hazely loam, taken from a pasture some months before, and which has had the grass sward, or upper part, rotted amongst the earth; mix all well together, and fill your boxes to the brim, or very near it, with this compost; then shake the boxes, to make the earth settle, observ-

ing to make the surface as level as possible; and before you sow, let the earth have fourteen days to settle. When you sow your seed, which should be about ten days after it is gathered, observe that the compost receives a pretty hearty shower; but if there is not any rain, take your watering-pot with the finest rose, and water it; then immediately sow the seed, as equally as possible, and not too thick, that being a great error, as well as covering it too much, the depth of a quarter of an inch is sufficient; and I would chuse the covering to be of the surface of the earth where the plants grew, which is to be laid on gently with your hand; by this care, no part of the seed will be lost.

The most proper situation for the boxes in summer, and even when the plants are very young, will be under a wall or hedge which looks to the north, or to the east, in order to protect them from the sun's heat: in dry weather it will be necessary to refresh the earth with gentle and frequent waterings.—Some sow the seed in *January*, in open mild weather, or about the first week of *February*, at farthest.

In *July*, prepare a nursery-bed of the same earth in which they were sown, and plant them at twelve inches distance, taking up as much earth with their roots as you can, so as not to disturb their young fibres; shade them from all sun, until they have struck root; keep them clear from weeds, and give them gentle waterings; and let this nursery-bed be made in such a situation, as to have the morning-sun only. Some of them will shew their flowers the same autumn, and many of them the spring following, when all the good flowers should be planted out in beds by themselves, and in a moist shady situation, where their varieties will much delight the curious eye: but for the greater certainty of distinguishing their beauties, I would suffer them to stand a year in the nursery-bed; about the beginning of *November*, while the plants are in this nursery-bed, and on a dry day, take a quantity of the compost in which they were sown, and with your hand lay it an inch thick over the bed, holding up their undermost leaves with one hand, while with the other you press the earth about the plants,

plants, observing to keep the bed clear from weeds, and any foggy stuff that may lie upon its surface: this covering will prepare your plants for shewing well the succeeding spring; and, even if they should happen to flower in winter, it will preserve them from the injuries of that season. They require to be transplanted every two years.

The *Double Primroses*, such as the *Double Paper-white*, the *Double Red*, and the *Double Yellow*, are pretty ornaments to a garden, especially where there are quantities of them; they are easily increased by parting their roots in *March*, and planting them in a shady and moist situation, where they will best thrive.



Spring Crocus, or Crocus Vernus,

IS so called to distinguish it from the *Autumnal Crocus*, and is a great beauty in the spring, and of which there are great varieties; the best sorts are to be had at *Haerlem*, in *Holland*, where you can buy one hundred roots, of twelve different sorts, for one guilder.

Having provided yourself with a large collection of these roots, I would first plant them as edgings to long borders, in which clumps of annual, or some perennial flowers are ornamentally planted; taking a dibble and making a hole two inches deep, put in a root, and into each hole I would advise you to put a little dry soot, to prevent the mice falling upon their roots, of which they are very fond: plant their roots two inches from each other, and instead of one row, plant two, for their better appearance, observing to plant those which flower the soonest, together by themselves, and so progressively with the others.

The second method of planting them is in beds, each colour by itself, planting the earliest always by themselves, two inches deep, and, (when they are in beds) three inches asunder, for they will increase fast enough

enough to fill up all their spaces or distances at which they are first planted, either by their off-sets, or by the seed, which you must cover with one inch of earth, as soon as you perceive it to fall; the third or fourth year you may expect to see them flower; it is necessary to cover the seed immediately after falling, otherwise it will be lost. I would advise you not to remove your *Crocuses* oftener than once in four years; but when their leaves are withered, cover them every year with two inches of new fresh mould, which will strengthen their roots, and make the new-fallen seeds germinate soon. Their seeds may also be sown regularly in the same manner as shall be directed for the *Bulbous Iris*: but there being now abundance of their varieties raised, and their prices so low, it is scarce worth a florist's trouble or pains to sow them in any other manner than has been just mentioned.



Persian Iris.

BOtanicallly named, *Xiphion, Persicum præcox, flore elegantissime variegato, Tournef.* This flower is justly termed one of the most splendid flowers of the spring. As I never sowed its seed, so cannot say any thing of its culture that way; possibly there may be varieties obtained from seed: when I was in *Holland* and *Flanders*, the florists there told me, they never had obtained any variety from sowing the seed, excepting the deceased *Jan van Leuwen* at *Rotterdam*, who told me, that one of his seedlings had produced him a flower, whose ground of colour and erect petals were of a fine blue, and that the tips or uppermost parts of its petals were spotted in the same elegant manner as the common sort are. I always planted them in a light soil, and in clumps, with other vernal flowers, where they blossomed very well; but I observed, when they put out many off-sets, the mother-roots and off-sets shewed only leaves: but as it is a root which off-sets freely, and will not succeed if often transplanted, or kept any time out of the ground, I used the following method, by which it flowered constantly:

stantly: Whenever the leaves of the plant were near decayed, if it had off-sets, I removed the earth from the bulb, until I was below it; then with my fingers I took them off, which by that time were formed into bulbs, and, taking them up carefully, laid in some new, rich mould, when I laid all smooth, without disturbing the mother-roots; the off-sets I planted either by themselves or in clumps, with other vernal flowers, in the same rich sandy soil, observing to preserve all their fibres: I planted them three inches leep, opening the earth as deep as their fibres were long; by this practice the old roots flowered every year. If you are desirous of making a nursery of them, and to plant the off-sets immediately, let the ground be wrought two feet deep into a soft mould, that their long fibres may have sufficient room, and not be cramped by any stiff soil, into which they cannot penetrate, which will make them stunt, not flower, and at last entirely decay. I have also had blows of them in pots to adorn chambers early in the spring, but observed after the blow to plant them in the open ground; this work is best done in *June*, when you are to plant them, together with the earth which was in the pot, without disturbing their roots in any manner whatever. As soon as you receive these roots from your florist, plant them, for if they lie any time out of the ground, they will be in great danger of rotting.



Daffodills, or Pseudo-Narcissus.

THE first of the *Daffodills* which blows in the spring, is the dwarf *Narcissus* with a double head, called *Narcissus nanus*, seu *Pumilus maximi capitis*; thus it is named in the *Voerbelms* catalogues in *Holland*: this kind does well to be planted in clumps of vernal flowers, with *Snow-drops*, and others; it thrives well in a rich light earth, but should not be lifted but once in two or three years; it has a yellow flower, a very short stalk, and a very large trumpet-like cup, fringed about the edges.

There

There is another sort of them, which has as high a stalk as the other *Daffodills*, and a large trumpet-like cup, and is fringed about the edges, which in the *Dutch* catalogues goes under the name of *Narcissus trumpet major*; this requires the same culture with the former, and should be planted in clumps of vernal flowers; this is botanically named *Narcissus major totus luteus, calice amplo prælongo*, C. B. P.

There are great varieties of *Daffodills*, which are to be had of the florists. When I treat of a genus of flowers or plants, which have many species, I include none but those, whose culture I know from my own practice.

There are four sorts of *Daffodills*, which I shall describe, which may be had from the *Voerbelms* and *Van Kampen* at *Haerlem*: they make pretty edgings for borders on each side of a walk, and do very well when planted in that way, immediately opposite to one another, and in the inside of an edging of *Crocus's*. The best sorts of *Daffodills* for such a show, are, 1^{mo}, *Narcissus van Sion*; this sort is often mixed with some of *John Tradescant's Daffodills*: this last is botanically called *Narcissus latifolius flore plenissimo, petalis partim flavis, partim viridibus interpolatis*: the first is botanically called *Narcissus multiplex, totus flavus*. Those in the *Dutch* catalogues are mixed together, and I chuse first to give them their *Dutch* names, as I have always had my best collection from *Holland*.

2^{do}, *Narcissus incomparabilis*, incomparable *Daffodill*, botanically called *Narcissus incomparabilis, flore pleno, partim flavo, partim croceo*, Hort. Reg. *Parisien*.

3^{tio}, *Narcissus Orange Phœnix*, botanically called *Narcissus latifolius, flore plenissimo, petalis majoribus pallidis, minoribus colore aurantii interpolatis*.

And 4^{to}, The double white *Narcissus*, botanically called *Narcissus albus, flore multiplici odoratissimo*, which should be placed in the edgings of borders, where flowers which blossom in *May* are planted.

All those *Narcissuses* or *Daffodills*, (but which should more properly be called *Pseudo-Narcissi*) should be planted in *September*, in edgings, or within those of the *Cro-*

cus, at six inches distance, every way, and four in depth; you are to make use of a broad dibble, half a foot long. Before you begin to plant, have ready a wheel-barrow full of rich and very sandy mould, filling the pit, into which you are to set the bulb, with two inches of it, that the tender fibres of the bulbs may shoot the more easily, and gather strength to penetrate into the mould below, which is not of so fine a texture; the pits are to be filled two inches above the bulb, riddling all over them two inches more of good garden-mould. Their leaves and flower-buds will appear early in the spring, and, except keeping them clear from weeds, will require no further care until the November following, when I would advise another coat of good garden-mould to be laid upon them, and in the spring to dress the beds, and clear them from weeds with your hands, which will be much safer for their springing buds, than to use the hoe or any other instrument whatever.

Of the rest of the *Daffodills*, or *Pseudo-Narcissuses*, the best kinds are:

1mo, The *Non-such Daffodill*, with double flowers, and whose big leaves are white, but the lesser leaves are of a gold colour, botanically called *Narcissus latifolius, flore plenissimo odorato, petalis majoribus candidis, minoribus aureis interpolatis, Boerb. Ind. et Hort. Eysl.*

2do, *Peerless Primrose-Daffodill*, called botanically *Narcissus medio-luteus vulgaris.*

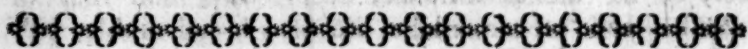
3tio, *Yellow Daffodill*, with the petals of its flowers reflected, botanically called *Narcissus luteus petalis florum valdè reflexis, Casp. Baub. P.*

4to, *The greatest Nonpareille Daffodill*, botanically called *Narcissus latifolius omnium maximus, amplo flavo calice, Park. Par.*

Those four sorts should be planted in clumps with other flowers, which blossom about the same season, viz. in *March* and *April*; and their culture being the same with those just mentioned, it need not be added here; but I would advise that none of their kinds be lifted sooner than once in three years.

As for the *Oriental Polyanthus Narcissus*, I shall treat fully of them in another place.

Cyclamen,

*Cyclamen, or Sow-bread.*

THERE are two kinds of this flower, the one with the white flower, botanically called *Cyclamen ver-num, flore albo*, C. B. and the other, which carries a small red flower, called, by the botanists, *Cyclamen ver-num minus, folio orbiculato infernè rubente, flore minore ruberrimo, Morif. bist.* These flowers are more tender than the autumnal sorts; and if they are not planted in pots in winter, or in spring, when they are in flower, they should have some covering or bell-glass over them in very severe weather. They do very well to be planted in clumps of vernal flowers, and should not be removed but once in two years; and when their leaves are faded, and their seeds are perfected, is the best time to lift them; I have often cut large roots from off their eyes, keeping them out of the ground until the wound was dry and sound. I planted the root, as also that part which I cut off, three inches below the surface, surrounding their bulbs with dry sand, when they flowered and prospered well.

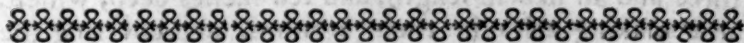
The two *Persian* kinds flower also in the spring; but as they both require to be housed in winter, I shall treat of them among the green-house plants, or under the article of *Guernsey Lillies*. Their seeds must be sown in boxes filled with rich sandy mould, as soon as they are ripe, and require the same culture as the *Bulbous Iris*, only they must be sheltered in winter under a hot-bed frame, or in the front of the green-house, where they may have much air, but be protected from frosts; and in six years after their sowing, their roots will shew all their beauties; observe to shift them every two years into fresh mould, and larger boxes, their roots growing fast.

I chuse to sow most of the seeds of bulbs or of perennial plants, which require to be protected in winter from the inclemency of that season, in boxes, rather than in pots, as they retain the cold and damps much longer than the latter; your boxes must rest on feet six inches high.

Vernal

*Vernal Colchicum.*

IN company with the *Cyclamens* may be planted in clumps the *Vernal Colchicums*, of which there is but one sort, botanically called *Colchicum vernum Hispanicum, flore rubro, C. B.* which makes a very handsome appearance with its purplish flower; for their increase, let them not be removed oftener than once in three years; but it will be very proper to lay new earth over them every *November*, before the frosts set in, which will preserve their roots, and make them blossom well in spring.

*Dens Canis and Fritillaries.*

THE *Dog's Tooth Violet*, or *Dens canis* and *Fritillaries*, are to be next treated of.—Of *Dens canis* there are three sorts; of which the white flowered with the broad leaf is the most common in *Britain*: its creeping leaves covering the ground, make a very pleasing appearance in the spring, and is by far preferable to the others, whose colours are neither strong nor florid: I always planted them two rows in a bed, and between each row, one of the different sorts of *Fritillaries*, which are mentioned in *Mynheers Voorbelms* catalogues at *Haerlem* in *Holland*, that the ground in such beds might be equally employed, and appear beautiful at the same time; for the *Fritillaries* flower much about the same time with the *Dens canis*, the former being naked in its stalk, and carrying no leaves near the ground, whilst the low leaves of the *Dens canis* adorn and embellish the surface of the beds, and the flowers of the *Fritillaries* seem to rise from the variegated leaves of the *Dens canis*.

The *Fritillaries* and the *Dens canis* are not to be moved oftener than once in two years; observing, about the beginning of *November*, every year, to give their beds a covering of fresh pasture-ground, or from the alleys
of

of the beds; and also to keep them clear from weeds; and in spring to go over the beds with your hand, in order to preserve the spring-buds of those flowers. The best time for lifting those sorts of flower-roots, is, immediately after their leaves are decayed, and their seeds are ripened, which is commonly about the beginning of *July*, when you may replant them as formerly, into beds of good light undunged earth, separating their off-sets, and planting them and the mother roots singly, about the beginning of *August*, as they are not to be kept long out of the ground; the *Dens canis* at two inches distance, and the *Fritillaries* at four, root from root.

The method I followed to propagate them by seed was as follows: in a fortnight after the seed of the *Fritillaries* were ripe, I provided boxes of two feet in breadth, three and an half in length, and ten inches deep, which, after making holes in their bottoms, and covering the same with oyster-shells, to let the water pass off, I filled them to the depth of six inches with the following compost, *viz.* one third of the oldest and most rotten tan-bark, one third of the purest white sand, and one third of a good pasture-soil, which had lain by for twelve months, with its upper sward well rotted in it; these I tossed up in a heap, afterwards screening it, but not too fine. The reason of laying no greater depth of compost in the boxes, is, that the boxes might be covered in bad weather, without injuring the leaves of the young plants.

These plants came up the *March* after they were sown, when I had a fine appearance, as few of the seeds missed; in winter I placed them where they enjoyed the full sun, but removed them in the middle of the following *March*, to where they had the rays of the sun until eleven in the forenoon only. During the inclemency of the winter, I placed them under a south-aspected wall, and in frosty evenings covered them with wooden covers; and in the extreme season of the year, I laid some of the oldest and best rotted tan-bark two inches deep on the surface of the boxes, and the latter end of *February* I took it off with my hand. When they were brought into a more shady situation, I dressed the mould, and cleared it of a mossy topping it had collected

ed during the winter, laying on half an inch of good kitchen-garden mould, in which was not any sand, left, by watering, the fine mould should be taken off the young roots, which is a caution necessary to be attended to, where a light covering is necessary. The seedlings came up well, and in *June* their leaves decayed, during which time, and until the middle of *August*, I gave them little or no water, but put a good covering of the compounded earth on their boxes; the winter and spring following, I used them as I had the year preceding, until *June*, when their leaves faded; at which time I lifted their roots, and found them as large as hazel-nuts, and quite sound, and of a fine size for their age, in proportion to their mother-roots; which, notwithstanding they feeded with me, blossomed as strong the second year, as they did the first, when I received them from *Holland*; but such as perfected their seed, I took care to shift into new beds of the compost I have already directed for them.

To return to the culture of the seedlings: Having taken them out of the boxes, I laid their roots to dry in the root-room, which I cleansed, after they had dried some days; then I made up a bed of the same compost, except that in this I put but half the quantity of the dry sand, into which I planted them two inches deep, and four inches distance every way. In winter I covered the bed with two inches of fine rotten tan; by the end of *February* I removed it by hand, and in *March* the plants shewed their leaves well, three of them shewing flowers, one of which was a large bell, and of an admirable snow-white colour, chequered with black; the other was of the kind they called *Monstrum* in the *Dutch* catalogues; the third was exactly of the colour of an apple-tree blossom. As soon as their leaves had almost decayed, I cut off their stalks a little below the surface of the earth, with a pair of scissars, in order to strengthen the roots, taking off more than one inch of the old earth, and covered them with two inches of new, and in *November* again covered them with old tan, which in the beginning of *March*, when the thaw came on, I removed; and in *April* I had such a blow of seedlings as was never before seen in *Britain*, and, amongst them, seven
T sorts

sorts which they had not in *Holland*; some of these I sent to my good friends the *Voerbelms* at *Haerlem*, to add to their catalogues of this flower.

Were our gardeners and florists more attentive, they have every opportunity of raising new flowers, having a different soil and climate to assist them, as most of them are natives of other countries. Patience and care are the chief ingredients, as we cannot have a blow from the seed-bed under six years, but then by continuing to sow, we shall, after that time, have every year something to reward and delight us: This has been my practice with the perennial bulbous-rooted flowers, and in a few years I was fully rewarded.



Crown Imperial.

Of this flower there are the following sorts, viz.

Common Crown Imperial.

Greatest Double flowered.

—— *Double crowned.*

—— *Triple crowned.*

Flat stalked, or Sword-bladed.

Silver striped leaved.

Gold striped leaved.

Single yellow flowered.

Double yellow flowered.

Yellow striped flowered.

Branched flowered.

Aurora coloured.

Orange flowered.

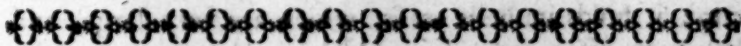
Bloody flowered, or, as the Dutch name it,

William Rex.

ALL these roots should be planted in a dry border of the garden, as too much moisture will rot them: they are very valuable, being the earliest tall flower we have. I always planted them in the middle of the bed, in *September*, laying a good deal of dry sand into the pits which I made for them, and making

making the earth nearest to their bulbs as loose as possible, that their young fibres might go through the mould with ease. When they were rising to blossom, I placed by them small sticks, to which I fastened their long stalks, to prevent the wind breaking them, as not any thing can be more prejudicial to them, than to have their stalks broken, or their flowers cropt by any accident; but as soon as you perceive their flowers decaying, and the seed-vessels forming, cut them off a little below their tops, allowing the other part of the stalk to wither; I lifted them every third year only, whereby I had great plenty of off-sets.

The Dutch florists have in their catalogues a plant, which they call *Lilium Persicum*, or the *Persian Lily*; this flower blossoms in April, has a pendulous or hanging flower like a *Martagon*, but is not reflected, and its colour resembles that of the *Double Martagon*; this requires the same culture as the *Crown Imperials*, and blossoms much about the same time.



Oriental Hyacinth.

I Come now to treat of one of the principal beauties of the spring, the *Oriental Hyacinth*; and as it is a peculiar favourite of mine, I shall accurately describe the most beautiful single and double flowers, which are in Mynheers *Voerbelms* and *Van Zompel's* catalogues, which flowered with me; and after proceed to the culture of their old roots, and their off-sets, and then give my own practice, whereby I raised many of these fine flowers of incomparable beauty, from seeds which I saved in this country; and as there is such a variety of them, it will be necessary to be very exact in their descriptions, whereby one may know what is a fine flower, an early or a late blower, with all its properties and colours; and I chuse to describe them from the catalogues of Mynheers *Dirk* and *Pietre Voerbelms*, and *Voerbelm* and *Van Zompel*, florists at *Haerlem* in *Holland*, as the flowers they

they sent me, excelled all others I had, either from Holland or Flanders.

I shall proceed to the description of the single white *Hyacinths*, beginning with the earliest blowers.

1st, *Premiere Noble* is an extreme pretty flower, with a high large stem, which is adorned with many bells of a white colour, but are somewhat pendulous, and are well reflected; this is an early blower, and seeds well; it blows also very well in water-glasses.

2d, *La Tendresse* resembles the former flower very much, as to the form of its stem and bells, whose pedicles are shorter and stronger, which keep the bells more erect; it is of a more shining white, and continues longer in perfection of colour; it is an early blower, seeds well, blows well in water-glasses, and is a very fit companion for the former flower.

3d, *Koningclite Parel* is a very fine flower, of a good colour, and a high stem, which is adorned with large bells, which are cornered prettily to the bottom of the cup; it holds its bells erect, which are very large, and has very often two of its bells joined into one at the top of its stem, for which it is much esteemed; it blows early.

4th, *Incomparable* is a flower of a charming colour, it has a high stem, which is adorned with many bells, and are somewhat pendulous; it seeds well, blows early, and continues long in bloom.

5th, *Gekroonde Liefde* is a very pretty flower, high stemmed, surrounded with a good number of large bells, which are long, pendulous, and reflect well; it blows early, and seeds well.

6th, *Olypbant*, or *Elipbant*, is a large, fair, handsome flower, its stem is pretty high, adorned with large bells of a good white colour; and here and there, upon the tips of its petals, are spots of a faint carnation colour; it seeds well, and blows early.

7th, *Phenomene* is a fine large flower, its stem is high, bears many bells of a dusky white colour, erect and well reflected; it seeds well, and flowers among the second blowers.

8th,

8th, *Tuberosiana*, so called, I suppose, from the resemblance its colour and smell has to a *Tuberoſe*; this is one of the fineſt flowers yet raiſed, its ſtem is ſtrong, and prettily adorned with extremely large bells, which are erect to admiration, and ſo well expanded, as to touch the extreme petals of one another, and is of a ſhining white colour; it ſeldom ſeeds, which I attribute to the great ſucculency of its large flowers. This root is not ready to off-ſet, and conſequently is ſcarce; it bears a great price, of late it has not appeared in the *Dutch* catalogues, but before was the ſole property of Meſſrs. *Voerbelms*; it is a ſecond blower.

9th, *William Friſo*. Before I proceed to the deſcription of this flower, it is worth remarking, that when the *Dutch* give any name to a flower, which deſerves obſervation, they call it by a name to which its appearance bears ſome reſemblance, or by ſome great hero or learned man, poſſibly in botany, or ſome other ſcience, either antient or modern. So it is in this flower, the bells of which, upon a high bold ſtem, and at the tips or extremities of their petals, are very much fringed, are large and thick ſet, and are of a fine white; it ſeeds very well, from which I have raiſed ſeveral fine double flowers; it is amongſt the ſecond blowers.

10th, *La Reine de Femmes*, or *Queen of Women*, for its high and floriferous ſtem, the exquisitely pure ſhining white colour of its bells, which are very erect, long, and is charmingly reflected, one of the moſt attractive flowers to the eye of the beholder yet known; its ſtem, from three inches above the ſurface of the ground, being quite filled with its charming flowers, to the number often of thirty-four, and ſometimes thirty-eight, to which magnitude I blowed it in my own garden. It ſeeds ſometimes, continues a month in full bloom, when it is carefully attended, and is a late blower, preſerving its admirable colours to the laſt. At its firſt appearing in *Holland*, it was ſold for fifty guilders per root, which is a great price for a *Single Hyacinth*.

The next diviſion of the *Single Hyacinths*, is called the *Single Roſe-coloured Hyacinth*.

1st, *Rose Princeffe* is a very pretty small flower; its stem is not high, neither are its bells large, but its rich carmine colour is very engaging; besides, that it has this particular excellence, that the longer it blows, the better it comes to its colour, and retains this colour till it is quite faded; it seeds constantly and plentifully, so that I have had roots of it which have borne good seeds two years successively; it is a second blower.

2d, *Bouquet Couleur de Chair*, or *Flesh-coloured Posie*, is a very handsome flower; it has a high stem, which is adorned with small bells of a fine flesh-colour; it seeds well, and is a second blower.

3d, *Rose Charmante* is a very pretty flower; its high stem is elegantly adorned with many bells of a rose-colour, and makes it deserve the name of a *Charming Rose*; it seeds well, and is a second blower.

4th, *Cleopatra* is a most handsome flower, with a high stem and very large bells, finely shaded with rose colours; it seeds well, and is a second blower.

5th, *Rosemonde* is an extreme pretty flower, with a high stem and large bells, elegantly mixed with white and coral colours; it seeds well, blows amongst the seconds, and has borne a good price in the *Dutch catalogues*,—
As does also,

6th, *Gekroone Rosencrans*, which is a very pretty large flower, with a high stem, adorned with many large bells, of a bright mixture of red and white; it is a late blower, and seeds well.

7th, *Rose Pyramidale* is a pretty flower; its bells upon a high stem are ranged in form of a pyramid, and are of a fine blush colour; it seeds well, and is a late blower.

8th, *Hermaphrodite* is a pretty blush-coloured semi-double flower, from whence it takes its name of *Hermaphrodite*; the stem is not tall, nor are the bells thick set, but they are pretty large, and are of a good colour, and it seeds constantly, from which I have raised some very valuable double flowers; it is a late blower.

9th, *Rose Prieell*, or *Rose-Cradle*, is a high-stemmed flower, which carries small semi-double flowers, which, in mild seasons, bear good seeds; it is a late blower.

10th, *Aurora* is a small semidouble late flower; it seeds, and is of a good *Aurora* colour.

11th, *Rose Naturelle* is a most elegant flower, of a fine rose-colour, with a handsome stem and large bells; it is a second blower.

12th, *Soleil du Monde* is a charming new flower, of a very fiery colour; it is a late blower.

Having described the best sorts of single and semidouble white and rose-coloured *Hyacinths*, which were under my care, I shall now proceed to the description of single and semidouble *Blue Hyacinths*, and shall begin with the dark-coloured.

1st, *Avant Coureur*, or *Forerunner*, so named from its being the very next to the brumal or winter *Hyacinths*, which blossom in *January*; it has a high stem, which bears flowers of a dark-blue on the outsides of the bells, the inner parts whereof are of lighter blue colours: it seeds sometimes in mild seasons, and blows very early, and may be known by this circumstance, that so soon as the leaves of the plant begin to appear above the surface of the ground, at the tips of the upper parts of their leaves, they have a spot of reddish colour.

2d, *Neger*, or *Black*; this is a small-belled flower, of a black colour; it seeds well, and is an early blower, and has a bold stem.

3d, *Koningclite Purpre*, or *Royal Purple*, is much such another flower as the former, but has its bells of a strong and dark purple colour; the stem and form of its bells are much the same as the *Neger*; it seeds often, and blows early, and is a very fit companion for the *Neger*.

4th, *Koning Van Poolen*, or *King of Poland*, is a very pretty, large belled, and high stemmed flower; its flowers are not very thick set on the stem, nor are the petals much reflected, but it has peculiar spots of a lighter colour near the outside-end of its bells, which are very pretty; it seeds well, and is an early blower.

5th, *La Couronne Triumphante*, or *Triumphant Crown*, is a very fine flower, having a fine stem, adorned with very large dark-coloured blue bells, through which pass

great stripes of a very dark colour ; its bells are well reflected ; it seeds well, and comes amongst the first of the second blowers.

6th, *Basbaw Van Cairo* is one of the prettiest single flowers that is to be seen ; it has a large high stem, thick set with many bells, which are well reflected ; the inner parts whereof are of a light blue, with dark stripes, and the outer parts of them are of a dark blue, well striped with light colours ; it seeds extremely well, and is a second blower.

7th, *Gratianus* is a very handsome flower ; its stem not very high, but bears large and long bells, of a very pretty dark colour ; it seeds well, and is a second blower.

8th, *Pastor fido* is a large, bold, blowing flower, with a large stem, whose bells are well striped with dark stripes, half the length of its petals or flower-leaves ; it seeds, and is a second blower.

9th, *Passa Jupiter* is a flower which has a thick stem, of a blackish colour, supporting its bells, which are somewhat larger than the former, for whom it is a fit companion to be planted near ; it seeds well, and is a second blower.

10th, *Golconda* is an extreme pretty flower, with a thick and tall stem ; its bells, which are large and prettily disposed on the stalk, are well reflected, and have a very uncommon bright, blue colour, mixed with a red, which makes a pleasant and strange appearance, resembling exactly what the French call *une Gorge d'une Pigeon*, or *Pigeon's Neck* ; it seeds well, and is a late blower : this flower bears a high price in *Holland*.

11th, *L' Azuur Croon*, or *Azure Crown*, is of an extreme fine colour, for it has a high stem, richly adorned with large bells of the brightest azure colour that can be seen, so as to attract very much the beholder's eyes ; it is a new flower, and is much valued ; it seeds, and is a late blower.

12th *Mosambique* is a prodigious large flower, with a high stem and large bells, of a fine mixed colour of blues, charmingly striped and shaded ; it seeds, and blows late.

13th, *Rex Indiarum* is a bold, fullen, dark-coloured flower, its stem is high, which is well surrounded with large bells of a very fine and vastly dark blue colour, striped with black; it seeds well, and blows late.

14th, *Dolphin* is a fine flower, quite resembling the shining various colours of the dolphin fish, with a high stem and large bells, finely and variously coloured; it is backward in seeding, and blows late: This flower is now much valued.

15th, *Gekroonde Moer*, or *Crowned Moor*, is of a dark, shining, elegant blue colour, and its stem is well set with large bells of the colour above described; the pedicles of its bells are short and strong, and bear them very erect, and carry a full face; it seeds, and blossoms late.

16th, *Brunon* is a flower of a brown colour, having its stem of the same colour, with strong erect bells, finely striped with a bright shining beau blue; it seeds, and blows late, and is a new flower, and bears a good price.

I come now to describe the light-coloured single, and semi-double flowering *Hyacinths*.

1st, *Passa Cato* is one of the largest belled single flowers yet raised, it has a middling high stem, thick and very strong; its bells are of an indifferent blue, mixed with a dusky green; it is not so valuable as formerly, and seldom seeds; it blows early.

2d, *Flore maculato* is a fine large flower; the stem is high, the bells of a good light blue, are very prettily, in the innermost parts of its petals, mixed with small drops of a very bright white, from which spotting it takes its name; it is an old, but valuable flower, and has not appeared in the *Dutch* catalogues for some years past; it seeds, and from it I raised some very fine double and single flowers; it blows early.

3d, *Bontenbelt blauwe en Witte Gessreep bonte*; this is a most charming flower; its stem is pretty high, which is adorned with bells of a middling size, remarkably striped the whole length of the bell, with a bright shining white, and a beau blue colour; it seeds well, and from its seed was raised the fine double blue flower,

Bonte

Bonte Souffpaille, which I shall describe in its place; it blows early, and, at its first appearance, resembles what we call our *Striped Cotton-Sattin Silks*, even before it opens its bells.

4th, *Claremonde Bleek blauwe en Witte Gestreept*, is a new flower, and one of the striped sorts, has no difference remarkable in its flower from the preceding *Hyacinth*, but this, that the blue stripes have a very dark colour, and the white stripes are of a shining white colour; it is amongst the class of the second blowers.

5th, *Blandina*; this is a bold flower with a high stem, and large bellsof a strong marble colour, which are well reflected; it seeds, and flowers amongst the second blowers.

6th, *Triton* is a large flower, has a strong stem, and large bells of a very pretty colour, the extremities of whose petals are reflected, and shew a very bright blue; it seeds, and flowers amongst the second blowers.

7th, *Trebifonde* is a very elegant coloured flower, with a large stem, around which are large bells with stripes of dark and light blues; this flower seeds well, and is a second blower.

8th, *Bisarde Agate* is a very large semi-double flower, having a very strong and high stem, which carries sometimes thirty-eight bells of an extreme pretty agate colour; it seeds in mild seasons, for which it is valuable; it is a second blower, and continues long in bloom.

9th, *Centaurus* is another semi-double flower, with a strong and high stem, which carries strong semi-double bells of a pretty colour, though not so many as the former does; it seeds constantly, and is a second blower.

10th, *Koningin Elizabeth* is a fine well coloured flower, has a good stem, upon which are bells of a light-coloured blue, which are well reflected, but are somewhat pendulous, or hanging downwards; it seeds well, and is a second blower.

11th, *Prince Van Asturien* is much such another flower, in its colour and stem, but its bells are more erect; this root is very apt to fly into hearts and off-sets, whereby it seldom seeds; it is a second blower.

12th,

12, *Fabius Maximus* is a vast large flower; with a strong stem, which carries very large bells finely enamelled with three colours; it seeds, and blows amongst the earliest.

13th, *Koningin Anna*, or *Queen Anne*, is a sweet light coloured flower, its stem is of a good height, adorned with good bells well reflected, of a pretty agate colour; it is a late blower, and seeds well.

14th, *Varro*, as to its stem and bells, is much such another flower, but it carries more bells upon its stems, seeds well, and blows late.

15th, *Schoone Asia*, or *Pretty Asia*, resembles the two former flowers, but has a fine stripe in its bells of a dark blue; it seeds well, and blows late.

16th, *Ganymedes* is an extreme pretty flower; its stem is high, and is beautifully adorned with bells finely enamelled, with two sorts of pretty blue colours; it seeds, and is a second blower.

17th, *Premier noble blue* is a flower very much resembling the *Premiere noble white*, in the form of its stem and bells, it seeds, and blows early.

18th, *Grifdeline Royale* is a charming flower; it is of a remarkable *Grifdeline* colour; its stem and bells make a noble appearance; it should have a place in every good collection of *Hyacinths*, because, as it seeds freely, one has a chance to raise fine varieties from it; it is a second blower.

19th, *Porcelaine Royale* is also a flower of an uncommon grand appearance, its stem is high and great, supporting bells of a fine watered porcelaine colour; it seeds, and is a second blower.

20th, The three *Brumal*, or *Winter* sorts of *Hyacinths*, viz. The *Brumalis Januarius*, the *Vroege Garcon*, and the *Vroege*, or *Early Imperial*, deserve a place in every good collection of flowers, upon account of their blowing in *January* and *February*, and may be well planted in clumps of the earliest vernal flowers, as they do not require the nicest care in their culture; and as they often produce great plenty of off-sets, when they are planted in a rich, light, sandy soil.

Having thus described the best sorts of single, and some of the semi-double *Hyacinths*, blue, white, and rose-

rose-coloured; I shall proceed to offer my practice of managing the roots of those flowers which carry seed, the method of sowing their seed, and cultivating them, until they show their blossoms, in which I had most extraordinary success.

As soon as you perceive the seed-vessels of the *Hyacinth* forming, you then may judge what roots should remain for seed, and what are to be sooner taken out of the ground. Such as are to seed, must be looked over twice every day, as soon as their seed-vessels begin to open, and shew their seeds, some black, and some brown, in order that the whole of the seed may be preserved. These seeds, when first gathered, are very clammy; wherefore, to prevent their moulding, let them be spread on paper, in large boxes, and in an airy place, not exposed to the sun, where they may lie some days to dry, then to be put into paper bags, and laid in some airy place for two or three weeks, before sowing.



Directions for making the Compost for the Oriental Hyacinth, &c.

THE few general rules I shall lay down for cultivating flowers, will answer the success desired, if carefully attended to.—In the first place, a compost is to be prepared for them, for which I shall give very particular directions. And, secondly, to give them this compost annually, to take them up in a proper time, every year as soon as their bloom is over; in winter to cover them, in such a manner, as that their tender fibres will be protected from the frost. And, lastly, when they are in bloom, to cover them in such a manner, as that their stems may not be drawn, or their blossoms spoiled by the injuries of the weather. The compost I prepared for them is as follows: From the month of *June* to that of *November*, I gathered from the pastures what cow-dung I could. (Horse-dung, though very well rotted, is not proper for *Hyacinths*, nor any bulbous-rooted flower.) And that from pastures is preferable to that collected from the cow-house; the first, when fresh gathered, sooner

sooner rots, and is much stronger, from their manner of feeding. However, the latter is not to be despised, when the first is not to be had. When this dung is taken into the compost yard, it must be well exposed to the sun and wind, the better to imbibe the nitrous particles of the air, &c. for which purpose I constantly turned and tossed it up, until the frost set in for continuing, when I laid it out to three inches depth, to mould and rot by the frost, which does more in a month, than can be procured in four from any other practice. From the first of *March* I continued turning it, until about the twentieth of *April*, when I laid it up in heaps, in form of hot-beds, and as soon as I perceived it heating, I covered it with near a foot of good hot-bed mould, and had very good Cucumbers and Pompions on these heaps, with several other hot-bed crops.

Whilst the dung was at this work, I prepared the earth for the *Hyacinths*, in which great care is to be taken. The earth about *Haerlem* (where *Hyacinths* thrive best) is of the colour of a black fallow, mixed with a white sand, and which, by lying, neither turns of a red, nor of a yellow colour, which is the colour of most of our *British* sand, except that sand which is found upon the banks near the sea, which is called *Holland* sand, and becomes whiter the longer it is kept. The black earth is also found in some of those banks near the sea, but more frequently in short heathy pastures: wherefore, in order to come as near as possible to the *Haerlem* soil, take one third of this white sand, and two thirds of this black mould, ten inches deep below the surface; taking some of the sward with it, and when you have picked out all the large stones let it be mixed with the white sand, in the proportion just directed, and tossed up, until the earth and sand be well incorporated, and the sward well rotted, so as to make an heap of compost, resembling as near as possible the *Haerlem* soil.

You are also to be provided with the fine riddlings of tan, and such as has been two years out of the pit, and worked in the stove; this must be exposed to the frost to mould and turn to earth; but where this is not to be had, take a quantity of well rotted leaves of trees, which will be equally good.

In

In *August* or *September*, I removed the mould from the cow-dung beds, as at that time the crops raised on them would be taken off; I then tossed the dung over and over, as I perceived it to want moulding, and in winter, when the frost set in, I laid it out pretty thin, to be perfectly well rotted against *April*, when I mixed it with the other materials, in the following proportions; viz. Two sixth parts of the earth and sand, which by this time were well incorporated, and seemed of a blackish fallow; three sixth parts of this well rotted cow-dung; and one sixth of the rotted tan, or leaves of trees; and when these were well mixed, I riddled it very fine: I also reserved a large heap of the rotted cow-dung, as it is much used in renewing the beds; a quantity of this dung I put into the beds I had made up for the flowering roots, and at such a depth, as might be within reach of their fibres, which is of great service to them whilst they are in bloom, and even afterwards, by enabling them to re-furnish themselves with strong bold leaves, stems and flowers, for the ensuing year; the neglect of this compost, and omitting annually to make up the beds, as is here directed, I can assure my readers, is one of the chief causes, if not the sole one, that occasions *Hyacinths* to degenerate in *Britain*; and this I aver from actual experience. The compost I have prescribed must be finely riddled, (notwithstanding what others may say to the contrary) as it is necessary it should be as fine as meal or flour, that every fibre of the *Hyacinth* may be invited into it, and to breed new ones, as on their multiplicity depends all your success.

I shall now direct their propagation by seed; the best time for sowing of which is about the latter end of *September*, when you must be provided with boxes of good timber, two feet and an half in breadth, and about four in length, with many holes in their bottoms, to be covered with the most concave oyster-shells, to allow the moisture to pass off freely; these boxes must be eight inches deep in the front, rising to ten in the rear, that the water may run off more freely from their wooden covers in winter, which is preferable to placing them under hot-bed frames, or any other covering. These boxes must have feet of six inches high, and sufficiently

ly strong; for were they to rest on bricks, they would imbibe too much moisture.

Having laid the compost carefully in the boxes, so as not to misplace the oyster-shells, take your seed from the seed-bags, and lay them in fresh water for six hours; then lay on them some fine powdered chalk, which will colour them white, so as they may be distinguished from the black colour of the mould, that you may see how and where you sow; place them in rows, one inch row from row, and half an inch seed from seed; lightly covering them; setting a small bit of wood at the head and foot of each row, that you may know where to find their roots when they are to be lifted, after their seed-leaf is quite decayed; cover them with an inch of the same mould, and let the boxes have a south-east aspect, but not too near a hedge or wall, and in such a situation as they may enjoy the whole rays of the sun in winter: In *October* or *November* some of these seedlings will come above ground with their seed-leaf, and the husk of the seed on its top, exactly like an onion, when you should lay on the surface of the seedling-box some very fine old rotten tan-bark, to protect them from the frost; observe also to cover them every night with the wooden covers, and in great rains and snows: but to be raised in the day-time, except when it snows; though even then the covers should be supported, to allow the air to refresh them; for the greater certainty of preserving them from moulding, when they will thrive the better; and in this season they must be carefully attended.—If the frost is very intense, lay in a quantity of straw under the bottom of the box, as well as over the covers, which I would chuse should fold over the seedling-boxes.

In this situation, and with this care, they may remain until *February* or *March*, when the covers may be opened all day, and at night, as they have the small covering of bark over them, through which a sudden dash of rain cannot so easily penetrate; nor would I remove their covering of bark from them, until their leaves are gone, as they may receive some nourishment from it, as well as from the compost wherein they are sown; and in dry seasons, when you are to give them
water,

water, it will glide more easily through the parts of the bark, than if you were to water the naked surface, when the earth might be drove off from their roots, even by the finest rosed watering-pot, which would be very prejudicial to them. — Take care also, in hot sun-shine, that you erect a shed to protect them from it, otherwise they might be hurried; and be careful that the shed be at such a distance, as to admit a free passage for the air. — About the middle or the end of *May* their leaves will be faded; and about the thirtieth of *June*, removing the bark with your hand, look for your small wooden marks at the extremities of the rows; which as soon as you have discovered, search for the roots, which you will find as big as small pease, and many as large as a small shallot; having put out one or two small fibres at most, which must not be taken from them; then lay them upon papers to dry, in a place of the root-room, where they may enjoy the air as fully as possible, but not the rays of the sun; but be sure in the interval between their leaves fading and their roots being lifted, not to water them. If you are apprehensive that you have not taken up all the young roots, riddle the earth, and such as you find must be put with the others; and now that you have the boxes emptied, turn them on their sides to dry and sweeten. In six weeks the roots are to be re-planted, first clearing them of all mouldiness and decayed skin, but not to take off any of the outside covering that is found. My reason for lifting these roots so early, is, that I have always found it dangerous to suffer them to be in an inactive state in the ground, in which they are for some time after their leaves are down; in this state they are apt to rot with the least damp; the taking them up gives the fairest opportunity of preserving them, by being spread out to dry.

The second year's process differs very little from the former; so that you are to prepare your boxes in the same manner, and with the same compost, making it as fine as possible, that no obstruction may be given to their tender fibres, as the least obstruction in their vegetation makes them rot, which they are apt to do. In six weeks
after

after lifting, or sooner if you perceive them springing, they are to be planted in rows, three inches asunder, and two root from root.

As soon as the frost sets in, I covered them with the same sort of tan as in the preceding year, protecting them from the hot sun in the spring, that their leaves should not be hurried out of their verdure, which is very injurious; and in winter I laid a little more bark upon them.

At the lifting season, you are to treat them as you did the former year, when you may expect to find them as large as common shallots.—— About the middle of *September* I replanted them in boxes two feet deep, in order to encrease the depth of earth; as their fibres will be in proportion as the roots advance in bigness, I planted them in rows three inches asunder, and two root from root, for the more room they have, the better will they prosper. They are now to be managed as before; but should you find them in winter, too near a wall or hedge move them to a more open situation; I would advise the boxes being strapped with iron, so as to admit a pole to pass on each side, for the more ready moving them, as the boxes will now be heavy, and are the best things for nursing these young plants in, which I would not plant in the open ground until after the third year.—— I lifted this plantation in five weeks after their leaves were down, and laying them in the root-room, I managed them in the same manner as I did the former years. Their roots being now pretty large, about the beginning of *September*, I dug a trench in the garden three feet deep below the surface, taking out all the natural earth, and making the bottom of the trench level, I put in the compost formerly prescribed, to one inch below the surface of the path-way; this bed should be only four feet broad, and the length according to the number of seedlings. After the bed had settled a few days, I planted them in the following manner: Having laid out eight straight lines the length of the bed, I took some of the driest sandy earth I could find, and laid it on the surface of the bed, to the depth of half an inch, and fixed them so in it

U

with

with my hand, that the riddling of the earth, with which they were covered, would not turn them on their sides; with the compost I gave them a covering two inches and an half; in this situation they remained until the frost set in, when I covered them with rotted tan, near two inches thick, filling the alleys of the beds with the same, to the tops of the beds, doing the same with the beds where the old roots were planted, to prevent the frost entering the sides or ends of the beds; and beyond the ends of the beds I laid the old tan two feet thick, for the better protecting them from the frost.

Before I planted these young roots, I took some stakes of timber, in which were fixed staples to admit the ends of hoops, these were drove down in the path-way, near the two sides of the bed, at four feet distance; and opposite to each other, in the spring, you are to set in your hoops, and across them secure some rods to support mats as a shade from the sun and weather, to protect the flowers and leaves of the plants. Before I set up the hoops, I removed the tan-covering with the hand, and had laid on half an inch of good stiff, garden, clayish mould, without any mixture of sand; the use of this is, that in watering the beds, (which may be necessary) the loose sandy earth may not be washed from the roots of the plants. — Some of them will shew flowers this season, which, as soon as they appear, stick down by their sides long wires painted green, which are made for this purpose, to which gently fasten them, when their flower-stems rise, first below their bells, and afterwards, as they rise, between their bells, with a piece of bafs-mat, but with great care, marking the good flowers. — They must continue in that position until the lifting season, when they are to be treated in the same way as you do your full-grown roots, as directed in pag. 272.

I shall now proceed to describe some of the best sorts of the double flowers, in the same manner as I have done the single.

The

The first which appears in Mynheers *Voerbhelms* and *Van Zompel's* catalogues for the year 1754, are the dark coloured double blue *Hyacinths*.

1st. *Passetoute*, is a mighty fine flower, its stem is not very high, but is adorned with large bells of a charming colour, with a stripe through them of a very dark colour; its innermost petals are large and well disposed: this flower well deserves its name, is an early blower, and blows well in water-glasses.

2d. *Kroon Van Brabant*, or *Crown of Brabant*, is a very pretty flower, its stem is higher than the former, and is beset with dark coloured bells, whose innermost petals are smaller, and finely enamelled with several colours; it blows early, and also in water-glasses.

3d. *Violet Croon*, or *Violet Crown*, is a mighty pretty flower, of a charming violet colour, its stem is high, the bells are double, very large, and well reflected, shewing their dark hearts, they are thick set, or rather grow in a clump upon the stem; this flower blows early.

4th. *Incomparable*, is a pretty flower upon a tall stem, which is extremely well set with small violet-coloured bells, which in mild seasons bear seeds; it is a very pleasing flower, and should be in every good collection of *Hyacinths*.

5th. *Semper Augustus*, is a noble flower, with a high bold stem, which is surrounded with a great many large double bells well reflected, and which display their beautiful innermost petals, charmingly enamelled with a beautiful diversity of brown and blue colours; it blows early.

6th. *Gekroonde Saphire*, is a very fine flower, with a high stem, and a fine spike of large saphire-coloured bells, well reflected; it bears a fine truss of bells at the top of its stems, as all the *Gekroonde* flowers do; it blows early.

7th. *La Grand Belle*, is a flower of an admirable fine violet-colour; it is an old flower, and had the name of *violet* added to it, until the flower, which is hereafter immediately described, appeared in the *Dutch* cata-

logues ;—it has a slender stem, and the bells appear on two sides only, they are long, and not well reflected ; it blows early, and is valuable only for its fine strong colour.

8th. *La Grande Violette*, is a fair fine flower, with a bold stem, upon which are placed large, erect, open, and well reflected bells, of a very deep violet colour, which make a pretty appearance ; it is an early blower, and continues long in its brightest bloom.

9th, *Jeuweell van Holland*, is a fine well-chosen flower, of a middling size, the outward parts of its bells are of a fine Imperial blue colour, the stem is high, the bells are well set thereon, and are well reflected, showing an elegant heart, well mixed with brown, blue and purple colours ; it is a second blower, and continues long in full bloom.

10th. *Purpre sans pareille*, is an extreme pretty flower, has a high and bold stem, with pretty bells, very double, erect, and well reflected, which shew their innermost petals to perfection, very well enamelled with purple and light blue colours ; it is a second blower, and in a bed of *Hyacinths*, where double blues and double whites are planted alternately, is a very fit companion for the *Koning van Groote Britannië* double white *Hyacinth*, their time of their flowering being the same.

11th. *Keyser Amurath*, or *Emperor Amurath*, is a fine bold flower, with a high blackish coloured stem, with large bells pretty well reflected, which at their first opening have a small white leaf in the bottom of its cup ; it is a second blower.

12th. *Perseus*, is a fine handsome flower, its stem is high, its bells are pretty large, much of the colour and form of the *Passetoute*, but has a longer spike of flowers on its stem ; it is an early blower.

13th. *Mars*, is a fine large flower, with a high stem, on which grow its large bells, not very double, but they have a fine black coloured heart ; its flower is of a bold aspect ; it is a second blower.

14th. *Counseilleur Burkline*, is one of the finest flowers yet produced from seeds, some of its lower bells being of a most beautiful enamelled colour, upon a large thick stem ;

stem; and, besides their being well reflected, are as broad as an ordinary *Ranunculus*; it is a most valuable flower, and an early blower.

15th. *Cedo nulli*, is an extreme pretty, large, new flower; it has a fine high and noble stem, its bells are very large, thick set, and well reflected, of an exquisite fine colour, and has a heart very prettily enamelled with variety of colours, and continues long in bloom; it is a late blower.

16th. *Brunette amable*, is a charming pretty flower, having a pretty high stem, on which are thick set dark-coloured bells, which make a very pretty appearance; it is a second blower.

17th. *Rex Negros*, is a fine large dark-coloured flower, with a high stem; its bells are well reflected, and display a heart of the most dark colours of all the blues; it has a noble aspect, and is a second blower.

18th. *Koning der Mooren*, or *King of the Moors*, resembles the flower immediately above described, but has a large black-coloured stem, and its bells are of a very dark colour, nevertheless they are vastly pretty; it is a second blower.

19th. *Tros-Blom*, or *Bouquet*, or *Cluster of Flowers*, named very properly, it being a large noble flower, with a high, bold, and floriferous stem, and the bells are numerous, and well reflected, with enamelled hearts; it is a second blower, and bears its bells in a long spike.

20th. *Grandeur Superbe*, although it is a low-priced flower, yet is one of the prettiest and largest flowers amongst the whole tribes of *Hyacinths*; it has a high floriferous stem, its bells are very large, erect, and well reflected, which display a pretty heart; it is a second blower.

21st. *Overwinnaar*, or *Conqueror*, is an exceeding fine flower, it has a small stem of a black colour, which carries at most six or seven bells, which are very large, erect, and of a round figure, are well reflected, and have this particularity in them, that from the center of the heart of the flower, there come out two small long petals or leaves, which go to the outmost verge of the

flower, of a quite snow-white colour, without any mixture of blue in them; it is a late blower, and at its first appearance was sold for one hundred guilders per root.

I shall now describe some of the prettiest *light-coloured double blue Hyacinths*, beginning with

1st. *Bonne sans pareille*, or *Good without an equal*, is an extreme pretty flower, has a high stem, adorned with very double bells, which are most beautifully striped with blue and white through their whole petals; it has a fine spike of flowers, and blows early.

2d. *Souveraigne*, is a very pretty flower, with a high bold stem, which carries fine double bells; the petals are well reflected, shewing a fine heart, enamelled with many small petals of a very dark blue; it blows early, and carries a fine spike of flowers.

3d. *Agaet Mignon*, or *Small Agaet*, is a fine flower, of a high stem, and but a small bell, semidouble, but well reflected, and the whole bell cornered to its bottom; it sometimes seeds, and has a very fine spike of flowers, and blows early.

4th. *Koning Willem*, or *King William*, is one of the best semi double flowers yet known; it seeds constantly, has a pretty high stem, and pretty well reflected bells, and blows early.—I have raised a great many vastly fine double flowers, of most extraordinary beauty, from its seeds; it has a fine spike of flowers.

5th. *La Plus Belle du Monde*, or *The Greatest Beauty in all the World*, is a very fine flower, it has a pretty stem, with double bells, which hang their heads a little, as being shy to shew the beautiful enamelling of their innermost petals, which continue a long time in full bloom; it is an early blower, and has a good spike of flowers, and is a very fit companion for the *Jewweel van Europa double white Hyacinth*, the form of their bells, and the season of their flowering being much the same.

6th. *Flora perfecta*, or *Perfect Flower*, is a pretty flower, it has a good stem, which carries bells of a very fine colour, in which there is not a little variety;
the

the innermost petals of the flower are very large, like the *Passetoute*; it is a second blower, and its flowers grow in trusses rather than in spikes, in a most regular and perfect manner.

7th. *Landgraaf van Soutzemberg*, or *Earl of Soutzemberg*, is a very fine large flower, has a bold stem, which carries large and double bells, whose petals are well reflected, displaying a dark blue heart, of a nice form; it is an early blower, and has a fine spike of flowers.

8th. *GLORIA MUNDI*, is one of the finest, largest, and most showy flowers as yet raised, and at once strikes the eyes of the beholders with wonder and admiration, on account of its most beautiful colours, the largeness and vast number of its bells, which are admirably disposed around its large and high stem, and are well reflected; all which form such a beautiful and lustrous spike of flowers, as has not yet appeared amongst the *Double blue Hyacinths*; it is a second blower.—At its first appearance it was sold for five hundred guilders per root.

9th. *Merveille du Monde*, or *Wonder of the World*, is a very pretty flower; it has but a small stem, and carries but few bells; but its excellency consists in the largeness of its bells, and their being well reflected, which display their hearts most wonderfully enamelled with a surprising variety of colours; it is a late blower.

10th. *Koningin van Vrankryk*, or *Queen of France*, is a very pretty flower, with a tall stem, which carries many bells, well reflected, which show a double heart, well mixed with several agreeable colours: it makes a good spike of flowers, and is a second blower.

11th. *Praal Creraate*, or *Open Ornament*, is a very charming flower; its stem is none of the highest, but its bells are very large, and well reflected, which shew an enamelled heart, much like the *Merveille du Monde*, but the colours are more distinct; this flower blows in a truss, and is a second blower.

12th. *Pronk Feuweel van Flora*, or *Flora's pretty Jewel*, is a mighty pretty flower, with a fine stem, surrounded with double, well reflected, erect, and round bells, which display a heart of a fine mixture, of

dark blue colours; it makes a fine spike of flowers, is a second blower, and merits a place in a good collection of *Hyacinths*.

13th. *Gloria Florum*, is a very large double flower, with a high stem, which is richly garnished with large and double bells, of exquisite beauty, as to their colours and their shape, they make a very fine spike of flowers; it blows early, and continues long in bloom.

14th. *Rien ne me surpasse*, or *Nothing surpasses me*, is a very fine flower, with prodigiously large expanded bells, upon a high stem, which are of an exquisite fine beautiful blue on the outside of their bells, are somewhat pendulous, their hearts or innermost petals being of a vastly dark coloured blue, feathered with petals like rays, all about them, which make a mighty fine showy spike of flowers; it is a very late blower, and excels most flowers I know.

15th. *Illustre d'Hollande*, or *Illustrious of Holland*, is a very fine, large, and double new flower; its stem is high, its bells surprising, as to their form and colours, for beauty; it is a Bouquet or truss-blowing flower, and blows amongst the seconds.

16th. *Passe non plus ultra*, is a most surprising beautiful large flower; its stem, its bells, together with the uncommon enamel of the inner petals of its bells, strike the eye with a most surprising lustre; it is a second blower. This flower has a particularity in it, which is this: The sides of the bulb open in the spring, to allow (as it were) the great bud and leaves to pass out easily from the heart of the bulb, and these chasms in the bulb do not close up, until it has fully sucked enough from the earth, in which it is planted, to fill up these chasms; so that when you intend to lift it, remove the earth from the bulb, and observe if the bulb has filled up its chasms, one, two, or more; and if they are filled up, and the chasms are not there, and the bulb is round and sound, then, and not till then, is the time to lift it, or such bulbs as grow in this extraordinary vigorous manner.

17th. *Aspasia Panache*, is one of the prettiest flower which have appeared; its bells are large, quite round, numerous, and erect, displaying remarkably marbled

or rather chequered bells with many light and dark blue colours; it is a fit companion for the *Controlleur-General double white Hyacinth*.

I come now to describe some of the best *Double white* and *Rose-coloured Hyacinths*, and begin with those which are pure *White*, without any mixture.

1st. *Morgen Staar*, or *Morning Star*, is a very fine flower, with a pretty high stem, the bells are large, and double, and well reflected; it grows in the bouquet or truss-form, and not in the spike manner; it blows early, and is a fit companion for the *Passetoute double blue*, the figure of their flowers and time of blowing being much the same.

2d, *Paerle Croon*, or *Pearl Crown*, is a pretty flower, its stem is indifferent high, upon which are seven, eight, or ten bells, of a fine pearl colour, well reflected; this blows early, but has not appeared in the *Dutch catalogues* for some years past.

3d. *Virgo*, is an extreme pretty and double flower, with a bold high stem, upon which grow many double, erect, and well erected bells, of a bright shining white colour, which continue long in bloom; it blows early, and is a very fit companion for the *Bonne sans pareille double blue Hyacinth*.

4th, *L'Admirable*, is a very pretty flower; its stem is high, adorned with large double long bells, which, both in their insides and outsides, are of a most extraordinary shining white colour; this is a second blower, and has a long spike, and is a fit companion for the *La Grande Violette double blue*.

5th. *Kroon Vogel*, or *Crowned Bird*, is a very handsome large airy double flower, with a high stem, which bears large double bells erect, and well reflected, in the bouquet or truss fashion; it is a second blower; this is a fit companion for the *Violette Croon double blue*.

6th. *Colffus*, is a very large strong double flower, has a large strong stem, with many bells, which are double, erect, and well reflected; it blows late in a spike, and suits well with the *Czarine double blue Hyacinth*.

7th,

7th. *Fleurweel van Alfema*, I must place this flower here, although it is placed amongst the *double whites* with violet hearts, by Mynheers *Voerbhelms*, in their catalogues; but I could never observe any violet colours, or any other colours but white in it. — It is a great beauty, is extremely double, has a high stem, upon which grow very large bells, erect, and well reflected, and double, to that degree, that one flower seems to come out of the heart of another, as some of the very double *Carnations* do. This has a good spike of flowers, and is a late blower; and, at its first appearance in *Holland*, was sold for a very great price.

8th. *Saturnus*, is a fine large new flower, with a high stem, surrounded with great double, erect, well reflected, and most magnificent bells. The bells of this flower are set upon their pedicles in a very uncommon manner, which botanists call, *floribus pediculo insidentibus*, the flowers sitting upon their pedicles, as the flowers of the *Astragalus maritimus annuus*, *procumbens latifolius*, of *Tournefort* do, which this flower, very singular in its appearance, does also; it blows amongst the seconds, with a fine spike of flowers, and should be in all good collections of double *Hyacinths*.

To the *Pure Whites* succeed the *Double White Hyacinths*, with violet-coloured hearts.

1st. *Fleurweel van Europa*. This is a double flower, with a good stem, upon which are placed seven or eight very double bells, erect, and charmingly well reflected, which display their hearts, well mixed with violet colours; it blows in the *Bouquette* fashion, and early, and is a fit companion for the *La plus belle du Monde double blue Hyacinth*.

2d. *Rose blanche et Violette*, or *White and Violet Rose*, is one of the prettiest flowers of the whole *Hyacinth* tribe: its stem is indifferently high, surrounded with ten or sometimes fourteen bells, of a most extraordinary colour, being of such a shining white, as to dazzle the eyes of the beholder, and are very double and well reflected, which display a charming large heart, of an uncommon

uncommon dark violet-colour, very distinct and large, without any mixture of white, and it has very often a double bell at the top of the stem, which makes an uncommon beautiful appearance; it blows in the *Bouquete* or trufs fashion, continues very long in the perfection of its bloom, and is a second blower.

3d. *Turksen Keyser*, or *Turkish Emperor*, is an extreme pretty double flower, with a high stem, which carries double bells, erect and well reflected, which display a large heart, finely enamelled with dark purple and green, and a faint white colour; the uttermost petals being turned up in form of the brims of a hat; it has a fine spike of flowers, and is a second blower.

4th. *Blanche Noiratre*, or *Blackened White*, is a charming flower, with large bells of a fine white colour, with its petals powdered all over with small black powderings, like small particles of sand; they are well reflected, and are erect, and grow upon a good stem, in the *Bouquette* or trufs fashion; it is a second blower.

5th. *Staaten General*, or *States General*, is a charming flower, its stem is not of the highest sort, but is surrounded with vastly fine large bells well reflected, which display a fine mixed heart; it is a second blower.

6th. *Assemblage de Beutes*, or *Assemblage of Beauties*. I am very sensible, that the exactest description of this flower comes very far short of the original, which is really one of the most charming flowers of all the *Hyacinth* tribes; its stem is not very high, but is adorned with bells, some of which are broader than an *English* crown, erect and well reflected, displaying a large heart, charmingly mixed with violet, white, scarlet, and carnation colours; it continues a long time in high bloom; it is a spiky flower, and is a late blower; it is a fit companion for the *Cedo Nulli double blue Hyacinth*.

7th. *Juno*, is a very pretty flower, with a high stem, the bells are very prettily reflected, and shew a fine, small, violet heart; they are somewhat pendulous, but it bears a fine spike of flowers, and blows late, and has not been in the *Dutch* catalogues for some years.

8th. *Koningen Eelber*, is a very pretty flower, with a high stem, and good bells of a shining white colour, erect and well reflected, shewing the innermost parts of its petals powdered, as it were, with a violet dust. This has a fine spike, and is a second blower.

I am now to describe some of the *Double White Hyacinths*, which are mixed with red.

1st. *Belle blanche incarnate*, or *Pretty white and carnation colour*, is a fine flower, with a high stem, which bears large bells of a shining white colour, erect and well reflected, the inner petals of which are of a bright carnation colour, without any mixture; it has a fine spike of flowers, and is an early blower.

2d. *Feu d'Amour*, or *Fire of Love*, is a charming flower, with a high stem, upon which grow large bells well reflected, but somewhat pendulous, of a bright white colour, having a very large heart, of an extraordinary scarlet colour; it has a fine spike of flowers, and is a second blower.

3d. *Comptroller General*, is a good flower, it has a short stem, upon which are nine very large double, erect, and well reflected bells, which display a large heart, of a light carnation colour, which often changes to white before the flower fades; it blows with the seconds, and in the *Bouquette* manner; this flower blows well in water-glasses.

4th. *Koning David*, is a pretty flower with a middling stem; its bells are large and double, erect and well reflected, and shew a heart very prettily enamelled with red; it is a second blower, and blows in the *Bouquette* or truss fashion.

5th. *Koning van Groote Britanniën*, is an extreme fine flower, with a high bold stem, which bears large, double, erect, and well reflected bells, which display a heart mixed with scarlet, violet, white and green, in a very elegant manner; I have had each bell of its lower tire bigger and broader by an inch than an *English* crown; it is a second blower, and has a fine spike of flowers; this flower blows well in water-glasses.

6th.

6th. *Koning Sesostris*, is a charming fine flower, its stem is not so high as the former flower, but its bells are as large and well reflected, of a vast shining showy white, with a large bright scarlet heart, entirely of one colour, and very splendid; it is a second blower, and bears a pretty spike of flowers.

7th. *Koning Solomon*, is one of the grandest and prettiest flowers which has ever appeared amongst the *Hyacinth* tribe; and it may well be named *King Solomon*, as it might justly vie with that great prince, in the prime of all his glory; this hath a high and bold stem, adorned with a great number of large, strong, succulent, spicy-smelled, erect, and admirably well reflected bells, which attract the eyes, inspire joy to the beholder, and display a large heart most admirably enamelled, with carnation, white, yellow, and bright green colours; it has a noble spike of flowers, and is a late blower.—At its first appearance, it was sold for six hundred guilders per root.

8th. *Flos Solis*, is an extreme pretty flower, with a high stem, surrounded with fourteen bells, of a middling size, and of an extreme pure white colour, fringed like the *Sun-flower*; in the middle of whose well reflected bells, appears a large heart, of a very deep scarlet colour, without any mixture; it flowers in the *Bouquette* manner, and is a late blower.

9th. *Vogel Struys*, is a very fine large flower, with a good stem, and large well reflected bells, of a beautiful white colour, which shew a large, good, red heart; it blows in the *Bouquette* manner, and is a second blower.

10th. *Stadbouder van Holland*, is such another flower as the *Staaten General*; it has a large stem, adorned with bells of an extraordinary size, erect and well reflected, which display a heart charmingly enamelled with scarlet, carnation, white, and green colours, intermixed in a most beautiful manner, and even most distinctly, so as one can perceive the different colours at a distance; it has a fine spike of flowers, and is a second blower.

11th. *Berg Vesuvius*, or *Mountain Vesuvius*; this is the prettiest double white *Hyacinth* I ever saw, its bells are very

very double, very large, and of a round perfect form, and has the largest and the finest deep coloured scarlet heart yet seen among the double hyacinths ; in short, he who is possessor of this flower, has the best and most beautiful of all the double white and red hyacinths ; it has a noble spike of flowers pyramidally set, and is a second blower ; it is one of the best flowers yet known.

12th. *Gloria Hollandiæ*, is a most magnificent, and a most charming new flower, with a large, strong, high stem, which is adorned with bells vastly large, double and well reflected, displaying the whole inner petals or heart of the flower, in a whole congregated mass of bright scarlet, and strong gold colours ; few flowers can compare with, and scarce any excel it, in its fine spike ; it is a second blower.

13. *Gloria florum suprema*, exceeds all of its kind yet raised, for its high stem, erect, well reflected bells, of a most snowy white, large and well disposed to admiration, displaying a vastly large heart, of a most shining scarlet, a bright carnation, and grand gold colours finely enamelled ; it is a new flower, has a noble spike of flowers, and is a second blower.

14. *Baron van Wafenaer*, is a very fine new flower, has a good stem, adorned with bells, erect and well reflected ; which, over the whole inner large petals, shew a very fine mixture of red, yellow, and green colours ; it has a fine spike of flowers, and is a second blower.

I shall proceed to describe some of the double white hyacinths, mixed with flesh colours.

1st. *Amytas*, is a fine showy flower, it has a pretty high stem, well set with large white bells, pendulous, but well reflected, which display faint carnation stripes, through most of the innermost petals of the flower ; it has a fine spike of flowers, and is a second blower.

2d. *Palais Van Juno*, or *Juno's Palace*, is a noble fine flower, with a very high stem, which sustains many double, large, erect, well reflected bells, whose hearts have a charming blush through them ; it has a fine spike of flowers, and is a late blower.

3d. *Griffiere Van de Staaten General*, or *Griffiere of the States General*, is a noble, high, bold-stemmed flower; its bells are large and double, and all over their inner petals carry a charming mixture of bright carnation colours; it has a fine spike of flowers, and is a late blower.

4th. *Prins Frederick Van Baden-durlach*, is a fine high stemmed flower, with a noble aspect; its bells are large, double, erect, and admirably well reflected, which display a heart of a fine carnation, white, and a green mixture; it has a fine spike of flowers, and is a very early blower.

5th. *Grand Rose Royale*, is a very large and a very charming double flower, a pretty stem, sustains large, well reflected, flesh-coloured bells; it blows in the truss or *Bouquette* fashion, and is a late blower.

6th. *Perfetta*, is a charming flower, it has a high stem, which bears very neatly shaped, erect, well reflected bells, which have elegant hearts of rose colours; it bears a good spike of flowers, and is a second blower.

7th. *Robin*, is a good semi-double flower; it bears seeds in a mild season very freely, and therefore is valuable; it is a second blower.

8th. *Eucharis*, is an extreme pretty flower, with a good stem, its bells on the out-side are of an elegant white colour, erect, and well reflected, having hearts of a most charming blush colour; it has a good spike of flowers, and is a second blower.

9th. *Agamemnon*, is a very fine, large, old flower, with a high noble stem, upon which are placed very large flesh-coloured bells, erect, and well reflected; it makes a very pretty show, has a good spike of flowers, and is a late blower.

10th. *Rose en douceur*, or *Rose in its Sweetness*, is a most charming rose, or rather a flesh-coloured flower, with a good stem, large, double, erect, and well reflected bells, which display their hearts charmingly enamelled with different sorts of rose colors; this is a new flower, blows in the bouquet manner, and is a second blower.

11th. *Grand Monarque du France*, or *Great French Monarch*, is the largest belled hyacinth yet known, erect,

erect, noble in its appearance, and really strikes the eyes with awe, respect, and reverence; it is a second blower, and adorns a collection of hyacinths.

I come now to describe the red-coloured hyacinths, which are the finest kinds of the double, upon account of their admirable colours, and which of late years have been much improved by the many charming flowers which have been raised of this colour from seed, by the florists in *Holland*, and which, at their first appearance, have been sold for a very considerable sum.

1st. *Aimable Rouge*, or *pretty Red*, is a very pretty small flower, its stem is not high, its bells are pretty double, erect, and have a most agreeable red colour in the bottom of the bell; it is an early blower.

2d. *Coralline*, is much such another flower, with a higher stem, and the bells are better reflected, and have a mixture of coral and carnation colours; it is an early blower. There is another kind of this flower, which blows later, and is called by the name of *Coralline tardive*, or late flowering *Coraline*.

3d. *Rose Illustre*, is a very pretty flower, with a high stem; its bells are large, erect, very double, and well reflected, which display their hearts of the most beautiful blush colour, and a bluish shade mixed with it, that can be seen; it is an early and most charming spike of flowers, and has most uncommon colours.

4th. *Pyramidale Incarnate*, is a very pretty carnation coloured flower, without any mixture, in a pyramidal form; it has a high stem, the bells are but thinly set upon it, are erect, and very well reflected, which show their hearts of a deeper colour than the outsides of their petals; it has a pretty aspect, a fine spike of flowers, and is a second blower.

5th. *Veltbaen*, or *Field-ben*, or Poppy, is a very fine flower, a good stem, and bells well reflected and erect, which in their hearts have this singularity of three small petals or leaves, as red, and of as bright a colour as our field poppies, from whence it takes its name; it is an early blower.

6th.

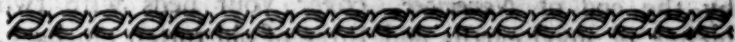
6th. *Rose Krans*, is a fine flower, its stem is not very tall; its bells are small, and rather long, indifferently reflected, but it has a very fine rich rose colour; it blows in the *Bouquette* manner, is a second blower, and sometimes seeds.

7th. *General Veltugmeeſter*, or *General Field-maſſhal*, is a noble high ſtemmed flower, with large, erect, round, double, and well reflected bells, of a good roſe colour, with a greeniſh ſhade, which is its only fault; it has a fine ſpike of flowers, and is a ſecond blower.

8th. *Gulde Zon*, or *Golden Sun*, is a vaſtly fine, large, rich coloured flower, with a high ſtem, large, erect, very double and with well reflected bells, which diſplay a heart of a noble dark *Carnation*, it blows in the *Bouquette* manner, and is a late blower.

9th. *Gloria Rubrorum*, or *Glory of the Reds*, is an extreme fine catmine-coloured flower, with a noble ſtem, which is remarkably adorned with bells, diſplaying bright roſe colours in their hearts, and over the whole flower; it has a good ſpike of flowers, and is a ſecond blower.

Having deſcribed the beſt double *Hyacinths*, I ſhall proceed to the culture and management of them.



Directions for the Raiſing of Hyacinths.

THE moſt favourable time for planting the double *Hyacinth* is about the latter end of *September*, which I would execute in the following manner: Mark out a convenient place in the garden, not too near a wall or hedge, and at the ſame time well ſheltered from winds and cold blaſts, the length as you pleaſe, but the breadth of five feet; the natural earth is to be taken out to the depth of three feet below the ſurface of the path-way, the bottom of which is to be levelled, then lay in to the depth of eight inches of well rotted cow-dung, beat down, and levelled, then lay over it twelve inches of the prepared, well rotted and riddled heap of dung, and four of ſand; by this means twenty-four inches, of the three feet, of this trench, will be filled up: My reaſon for laying in this depth of well rotted dung and ſand, is, that the extremity of the fibres of the *Hyacinth*

may reach them, and draw from thence sufficient to support a strong flower the succeeding year, and to supply the succulency of their strong stems and bells; then fill the trench with the compost as directed in page 272, until it be near equal with the surface of the path-way; then on the surface of the compost lay one inch of your sandy earth, the purest and finest you have: When you are to plant four or five roots in breadth, in five feet beds, and eleven inches every way root from root, in the quincunx order, and not nearer to the outer extremity of the bed than six inches; the roots you are to set down with your fingers, to the depth of one inch, and over them lay on three inches of the compost riddled over it, with one of good garden mould, so that no more than the depth of four inches will be above the top of the bulbs. I have frequently planted them, with great success, about the beginning of *October*, when I covered them with no more than two inches of compost until the beginning of *November*; for when they are too much covered, they will not strike out their fibres, but rot, the air, by the depth of earth, being excluded from them, which, by a thin covering, is admitted so as to provoke them to send out their fibres. As soon as the frosts set in, or by the end of *November*, cover your beds with two inches of good earth, and three of old rotten tan-bark, or fallen leaves of trees, and also two feet beyond the extremities of the beds; filling the alleys between the beds (which may be two feet broad) as high as the surface, there to remain until the end of *February*, or beginning of *March*, according as the weather is mild or severe, and then to be removed with the hand only, for the better protection of the shoots, which at this time will begin to appear. In the place of tan, as a covering to the bed, I have used pease haulm, which is a much lighter covering, and more easily admits the rancid vapours of the beds to pass off, which, when confined, destroys the root; and, the better to protect them from this evil, is the occasion of making every thing so fine we lay over them: when the tan is used, be careful to remove it as soon as the severity of the weather is gone, for then your roots will germinate fast, and require the admission of the air to promote it. I always
 planted

planted a double white and a double blue *Hyacinth* in the first row, and so alternately the whole length of the bed, observing to plant those together which come in at the same time, that is early blowers, second blowers, and late blowers, all by themselves; the second row I began with a double blue, and then a double white, in the quincunx order, to the end of the row, and in the same manner with the third and fourth rows. As soon as I perceived their leaves appearing, I examined my pocket index of roots, in order to set down their labels, with numbers on them as marked in the index, such as, No. 1. to *Morgen* star double white, and No. 2. to *Passetoute* double blue *Hyacinths*, and so on through the whole bed; so as to preserve their distinctions at the season of lifting, as have been directed. You must observe to use your covers not only when the flowers are in bloom, but before they blossom, to protect their flower-buds before they open, from frost, snow, hail, or much rain.

The best coverings for *Hyacinths* are painted cloths or matts, sustained by arched hoops, which are fixed on frames to the height of two feet: The present method of inclosing the beds with strong boards is best, as they not only keep them well inclosed, but admit staples in their sides to receive the hoops, so that the covering is soon laid on, or removed, as the weather makes it necessary; these coverings must be removed in mild weather to preserve the flowers and roots in good health.

When the stalks of the flowers spired up, I very gently tied them below the bells to iron wires, made for the purpose, as I already observed; and when the bells separate, open, and prepare for flowering, I gently tied a piece of bafs mat between the bells, to sustain their stems and flowers to the wire, which makes a very handsome appearance; and as soon as their flowers were quite faded, I gathered up their long leaves and tied them to the wires, but so loosely as not to break or hinder them from growing; this is only to preserve them from breaking or wind-waving. Five or six weeks after they have done blowing, and their green leaves are turning yellow four or five inches below their tops, I carefully lifted them out of the ground, immediately cutting off their leaves and stems close to their bulbs. Another method to be pur-

sued, for the purpose of knowing when the roots are ready for lifting, is, to take the earth from the top of the bulbs, if the leaves and flower-stem are healthy, and appear smaller at the bulb than at the surface of the bed; you may then be assured, the ensuing flower and leaves are fully formed, so that they should be immediately lifted, for fear of their rotting; when they are lifted, they are to be treated as before directed, viz. to have their leaves and stem immediately cut off, and directly laid with their respective labels in their boxes in the root-room, to dry by the air and wind, but not by the rays of the sun, observing not to take any of their fibres off, allowing them to wither; as the bulb is never injured by the fibres being suffered to decay in this manner, but by suffering their stems and leaves to be bruised; when these are removed, you may ripen the roots by laying them upon the top of the beds wherein they bloomed, covering them with a little dry sand, and shading them in the hottest sunshine with matts, not laid on the earth, but hung as sun-shades, by which means the roots will have free air to ripen, the better to preserve them until the season for planting returns.

The latter is most practised by nursery-men, as it gives the outward coat or skin of the roots a harder substance, so as the better to pack for exportation, while others follow the first, which is that I practise for the saving of my finest *Hyacinths*, and which others pursue with no less success.

From an exact attention to the following rules, I have had my flowers so much in their prime, as not to degenerate; an almost universal complaint.

1st. It is certain, that most part of our soils in *Britain* have more or less clay in them, except the pure white sand, or dark grey sandy earth, which is found near the sea, or where short tufty heath grows. These soils are most proper for *Hyacinths*; and it was my practise to take three parts of old well rotted cow-dung, one of pure white sand, with one part of dark coloured sandy earth, and another of well rotted, and fine sifted tan; in this compost they thrive well, but where there is any mixture

mixture of clay, the root becomes inactive, and instead of fifty, have not five fibres to draw nourishment for the flower.

2d. *Hyacinths* should never be planted where there is stagnated water, whether above or below the surface.

3d. You must use no other dung for your compost but that of cows, which must be well rotted, and of two or three years old ; but for want of this dung, old rotted tan-bark, or rotted leaves of trees will do.

4th. You must not use for the compost, that earth wherein *Hyacinths* have been often planted, nor suffer their roots to continue in the ground, for they must be lifted every year.

5th. Do not plant good and sound roots with such as are not sound, otherwise the latter will infect the former.

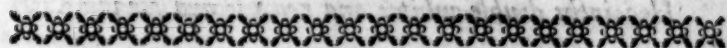
6th. Observe to sow *Hyacinth* seed every year, for from them you may raise many different sorts of flowers, as good, and more to be depended upon, than such as are imported from *Holland*.

7th. Where the sowing the seed may be thought too tedious, and that you chuse to propagate some favourite flowers, do it by off-sets, which of some flowers are difficult to procure ; but pursuing the following expedient, they may be had, which frequently produce as good flowers as any imported from *Holland*: A fortnight or three weeks after they are past their bloom, take such roots out of the ground as you chuse to have off-sets from, cut off their long leaves and flower stems, but do not take off their fibres ; and just above the circle from whence spring these fibres, cut the bulb across in four quarters, a third part into its substance, but so as not to touch its innermost coats or its heart, then wiping it with a cloth, put it into the ground again, and cover it with no more than one inch of earth ; lift this root again in three or four weeks, and lay it in the root-room with the others, and at the usual season let it be replanted. This root will not bear a flower the ensuing season, but in its place will, at the lifting season, give you six, eight, or ten large off-sets, which, as they are bred (I may say) in our soil and climate, are much more to be depended upon for blossoming well, and for continuing to do so, than those imported from *Holland*. Nor is there any fear of their roots degenerating, provided they are lifted

out of the ground every year, and that the soil just directed is annually given to them when they are replanted, and the other directions followed. I affirm, from repeated experiments, that I have had the same roots blossoming fair with me for six years together, and would have continued to have blossomed some years longer, if the roots had not expended their strength by off-setting.

I shall now proceed to give a catalogue of early doubles, second blowing doubles, and the latest flowering double *Hyacinths* in Mynheers *Voerbelms* and *Van Zompell's* catalogues, florists at *Haerlem*, and in the same manner I shall class their single *Hyacinths*; and of all these sorts I shall take their best good standard flowers, without regarding what are new, or what are high-priced. What induces me to do this, is, that when a florist or a gentleman designs to plant beds of single or of double *Hyacinths*, he may plant his flowers uniformly, according to their season of flowering, early blowers by themselves, second blowers together, and late blowers in the same order, that his bed may not appear with flowers blowing promiscuously, an early with a late, and so on, in a confused manner, which is only to be avoided by classing these flowers according to their different times of blowing. I do not think it worth a florist's time, pains, and expence, in this country, to sow seeds of all sorts of flowers; if he sows the seed of the *Hyacinth*, *Auricula*, and *Ranunculus*, for a trial, together with the *Polyanthos Primrose*, *Christmas Rose*, *Winter Aconite*, and *Hepatica*, with some others, to obtain double flowers, where they have not as yet appeared, he does well. He may also do more, if it suits his conveniency and taste; for I mean not to confine him.*

* The Florists in *Holland* have a method of placing the flower leaves of their *Hyacinths*, and other flowers, upon paper, which keep their colour for many years, and which no Florists should be without. The most curious in the catalogue I have marked with an asterism.



Hyacinths double white and red, early Blowers.

Morgen Star	* Rose Illustre
Belle blanche Incarnaate	* Jewell van Europa
* Prince Frederic van Baden Durlach	Constantia
Paerle Croon	* Rose triumphe van Flo-
Coraline	ra
* Pilius Cardinaleum	Belle Pomona white
Gloria Florum alba	Virgo white
* Rubro Royale	White Pyramide
* Rosencrans van Flora	* Roodenhaen
Rubre Cæsar	Koningin Esther

Hyacinths double blues, early Blowers.

Passetoute	* Violette Croon
Croon van Braband	* Semper Augustus
* Bonte Sanspareille	Carolus Magnus
Landgraaf van Soutzemb- berg	Olympia
* Conseilleur Burklin	Polycrates
* Directeur General	Incomparable
* Gloria florum blauwe	Madame Royale
Rex Florum	Keyser Tiberius
Demus	Baillieu van Amstellant
Citheris	Souveraigne
* La plus belle du monde	Gekroonde Vryheid
* Grande Violette	Louis Quinze triumpphan-
Perseus	te.

Hyacinths double whites and red, second Blowers.

Pallas	La Jove d'Hollande
Saturnus	General Veltugmeeſter
* Feu d'Amour	* Monarque du Monde
* Optimus	* Pontifex Romanus Red
* Koning van Groote Brit- tannien	* Praal Cierate White
Kroon van Groote Britan- nien	Praxinoë
* Gloria Hollandiæ	Griffioen
* Gloria Rubrorum	* Purpre Roſe
* Gloria mundi Rubrûm	Roſe blanche et Violette
Controlleur General	Roſe en douceur
* Couleur de Feu	* Roſe d'Hollande
Admiral van Hollande	Roſe Sacré
Roſe ſuperbiſſima	Roſe Incomparable
Koningin van Hongarien	Koninglite Roſe
Baron van Waſſenaer	Kroon Vogell
La Magnifique	Staaten General
Witte non plus ultra	* Soleil brillante
* Berg Veſuvius	Kerk Croon
Vogel Stuyſ	Koningin Alexandra
* Revifeur General	Amatiſte
* Roſe de Parade	Amintas
Koning. David	Amelia Sophia
Lucella	* Luyſtre van Flora
Valeria	* Illuſtre Beauté
* La Beauté Incomparable	* GLORIA FLORUM SUPREMA.

Hyacinths double blues, ſecond Blowers.

* Pontifex Romanus blue	Grand treſoriere de Bre- tagne
* Gloria Mundi blue	Rex Negros
* Purpre Sanſpareille	* Koning der Mooren
Keyſerine Aſpafia	* Paſſe non plus ultra
* Illuſtre d'Hollande	Gekroonde Saphire
Vleigende Vogell	Gekroonde Staarbeelde
* Grooten Sultan	Baillieu van Brederode
Victor Amadeus	Koningin van Vrankryk
* Tros-blom	Pronk

Pronk Jewell van Flora	Duc de Luxemburg
* Archidamus purpre	Triumphe du Monde
Parmenio	* Flora perfecta
Metellus	Keyfer Amurath
Leonidas	Prins Noble
Procureur General	Kroon Imperiale
* Brunette aimable	Praal Cieraate Blew
Gekroonde Leuw	Konings Croon
Gekroonde Fontaine	* Grandeur Triumphant
Antigonus	Prins van Birkenfeld
* Francois Premiere	Graave van Buuren
* Aspasia panachè	Duc de Kammerland
* Pluto	Passe la grand belle panachè.
* Sanspareille panachè	

Hyacinths double red and white, late Blowers.

* Jonquille mignon yellow	* Flos Solis
Purpre blanche	Juno
* Assemblage de Beantes	* Gulde Zon
Vrendenryk	Koningin Jocasta
* Koning Solomon	Jewell
Rider Catz	Roy de Peru
* Topaz	* Toog van Flora
* Tempel Solomons	Agamemnon
Griffiere van de Staaten	Jewell van Alsena
General	La Grand Rose Royale
Coloffus	Dendropedios
* Palais van Juno	

Hyacinths double blues, late Blowers.

* Rien ne me surpasse	* Grand Mogoll
* Cedo nulli	Zegen Zuyll
Purpre Jewell	Zegen Praall
Cid	Rex Indorum
Czaarine	* Tresorier General
* Overwinnar	Virgo blue
Hertog van Courland	Miltiades
Koning Minos	Merveille du Monde

Early

Early Hyacinths single Blue.

Avant Coureur
 Dutchesse d'Orleans
 Grooten Sultan
 Kroon Van Braband
 Cincinnatus
 * Passa Cato
 Passa Cretal

Aimable boit
 Maculato store
 Koning's Kroon
 Leopoldus
 Duc de Weymar
 Gallas
 * Niger.

Second blowing single blue Hyacinths.

Aglaurus
 Bassa Van Cairo
 Emilius
 Gekroond Moer
 Gratianus
 Gravine
 Herderin
 Keyser van Java
 Pastor fido
 Proserpina
 Rex Indiarum
 Admiral de Ruyter
 Agreeable
 Mirabelle
 Papirius
 Ganymedes
 Gekroonde Vreede
 Grand Visier
 Grisdeline Royale
 Hegisippus
 Ixion
 Keyser
 Keyser Constantin
 Lyra
 Porceleine Royale
 Premiere Noble
 Aletis

Alexis
 Atlas
 Belle Clara
 Bisard Agaet
 Blandina
 * Botenhelt blauwe en Witte
 Koning van Poolen
 * La Courronne Trium-
 phante
 * Comble du Gloire
 Menelaus
 Mignon
 Sylla
 Trebifonde
 Centaurus
 Claremonde blauwe en
 Witte
 Crocodil
 Cretal
 Dedalus
 Tresoriere
 Triton
 Triumphant
 Turksen Standart
 Varro.

Latest

Latest Blowers single blue Hyacinths.

Dolphin	Koningin Anna
General Grovensteine	Cerealis
* L'Azuur Kroon	Semper Augustus
Morinete	Thalus
Golconda	Porcelaine Kroon.

Early blowing single white and rose-coloured Hyacinths.

Koning David	Galathea
Aula	* Koningclite Parel
Olyphant	* La Tendresse
* Premiere Noble	* Rose Princeffe.
Trompeter	

Second blowing single white and rose-coloured Hyacinths.

* Tuberosiana	* Roode Keyserine
Eleanora	Four Ardent
Gekroonde Liefde	Gekroonde Rosencrans
Incomparable	Lesbia
* Rose Naturelle	Lucretia
Mariamne	Orange Vlies
Pironella	Reine d'Espagne
* William Friso	Phyllis
Witte Valk	Princesse d'Orange
* Alexandra	Prokris
Cassiopeia	Rakima
Clarinde	Rodonica
Cleopatra	Rosaline
Mynheer Justice	Rosemonde
Clito	Rasenhoff.

Latest blowing single white and rose-coloured Hyacinths.

* La Reine de Femmes	Hermaphrodite
Reine de Portugal	Rubans d'Or
Antonius	* Koraal Tak
Aurora	Princesse d'Orange

Rose

Rose Charmante

Passa Keyfers Croon

Rose Migniarde

Soleile du Monde.

I shall likewise introduce here the early and late blowing *Oriental Narcissus*, with some particulars necessary to be more exactly attended to, extracted from the general Direction in page 293.

The *Hyacinths* and *Polyanthos Narcissus*, several gentlemen complain, never blossom fair but in the first spring after they are brought from *Holland*, which I must attribute to mismanagement, as I have frequently raised them to carry seventeen, twenty, and twenty-four flower-bells of most extraordinary beauty, as large and as fragrant as ever I met in *Holland* or *Flanders*; when, on their first coming over, they had not more than nine, ten, and some fourteen bells of flowers upon their stem.

The year before I received my roots from *Holland*, I collected a good quantity of fresh, sandy, black-coloured earth; if it was not as sandy as I could wish, I added a fourth part of good white-sea sand; to this a third of old well rotted cow dung, and a fourth of well rotted tan; then, having taken out the natural earth to the depth of three feet, I filled the pit with the compost, first laying the depth of eight or ten inches of pure, old, well rotted cow-dung, which is reserved for the purpose, when preparing the compost, as directed in page 274, and to be only six inches from the bottom of the *Narcissus*' bulbs, to receive their long fibres.

The bulbs I planted five inches deep, and, in very severe winters, covered the tops of these beds with three or four inches of tan to keep out the frost. Some of these bulbs I lifted the first year, especially if they had made off-sets, (and most of them had two or three) re-planting them again in *October*, in new earth of the same composition; and their off-sets I planted in the same manner in the nursery-garden, but them I did not lift until they were to be planted in the great flower-garden with the old roots.

If you perceive that your *Oriental Narcissus*' have not any off-sets, you may let them remain in the ground for two years; but when this happens, I am certain it is owing to some unskilful management; so that they should
be

be lifted, in order to replant them in the compost just directed, when they will give abundance of off-sets.

Should you be desirous to have your off-sets large, you may suffer them to remain in the ground; but, in November, give them a covering of two inches of rich and strong kitchen-garden mould; and in December, cover them with four inches of old-rotted tan.



Having given the whole of Sir James Justice's Directions for the Culture of the Hyacinth, we shall introduce that practised by Mr. George Voorhelm, of Haerlem, who was a great Admirer of this Flower, and an excellent Practitioner; extracted from his Treatise.— He recommends the following Compost.

TO two sixths of grey sand, or black fallow, add three sixths of cow-dung, and one sixth of tan, or the leaves of trees; these are to be taken fresh, and when mixed, are to be thinly laid out for six months to meliorate, and to be kept clear of weeds, and then to be turned every six weeks for six months more, when it may be laid into the frames, to the depth of two feet, to receive the roots, which I would not advise to be planted deeper than four or five inches. The aspect we give the beds here, are an East or a Southerly; the first we prefer, as the flowers then have not too much sun; and the beds are secured from the other points by walls or hedges situated at a good distance. I have observed, in general, that the roots weighing about one ounce, or one and a half, give the most perfect flowers; and to the most forward flowers we give a greater depth in planting than to the later, in order to have them in blow at the same time.

The length of the frames he recommends, are to be about 30 feet long and four broad, and all others in this proportion; this to be divided into five rows, each of which are to have forty roots planted in them; and, for a greater regularity, the frame is to be laid out in cheques, in the centre of which a root is to be laid; and as to colours, in this order, a blue next a white or red, observing

ing to plant the tallest blowers in the upper part, and the lowest in the front, reserving the middle for the most beautiful; but, previous to laying out the frames in this manner, he directs six inches of the compost to be taken off, and the remainder laid smooth to receive the roots, which should be on a fine day, about the eighth or tenth of *October*, when the forward blowers are to be planted two inches deep, the other laid on the surface, raising the compost about them to the height of two inches; when this is performed through the whole frames, the six inches of compost first taken off, is to be laid gently on, and smoothed over, when, for four months, not more is to be done, than to protect them from severe frost, (when they are one inch above ground) by a layer of tan, three or four inches deep, to be removed by the first of *March*, when wooden covers, which are easily used with his frame, as it is made like those of our hot-beds, rising no higher in the front than the growth of the flower requires, gradually ascending to the back, and are used to protect them in the spring nights: Their flowers are also to be protected, by covering of canvass raised on hoops. The lifting of these roots he would not have done until the leaves have lost their green colour, and turned brown, and even become dry; and when that is done, it should be executed with abundance of care, to avoid doing the least injury to the root and fibres, when they are to be laid in the root-room to be dried, by the air only, and to be no way handled until the planting season, when all superabundant stuff is to be taken off, with the off-sets, which will come away freely: It is at this time you ought to examine your roots, in regard to health and soundness, to prevent disappointments. As to other particulars, they are so fully given by Sir *James*, as to render them unnecessary here.

N. B. The compost he used for his *Hyacinths*, after their blow, he gave for the use of the beds, where he raised his *Tulips*, *Ranunculus*, *Anemonies* and *Auriculas*.

Early



Early blowing Oriental or Tros Narcissus.

Primo Geel	Charmante Nyt
* Soleil d'Or	Fontaine
* Basselman Major	Gouden Beer
Belle Ligeoise	Gouden Sceptre
Belle Oroe	Grand Etandart
Grooten Czar	Medioluteo triumphante
Hertogin	Polymnestor
Bellei Idoor	Medioluteo Royale
* Medioluteo Calice plene	Basselman Jeaune
Major	* Passe Basselman.
Calisthenes	

Late blowing Oriental Narcissus.

Witte Vreede	La Syrenne
Witte Duiff	Koning van Sweeden
Witte Nonpareille	Koningin van Sweeden
Tassete Minor	* Grande Citroniere
Tassete Major	Aulus
Triumphe de l'Empire	Imperator
Suprema	Imperatrice
Souvereigne	* Sulpher Kroon
Primo Citroniere	Reine d'Angleterre
Pretiosa	Czaar.
Luna	

HAVING



Directions for blowing the Hyacinth in Water.

HAVING laid down the culture of the double and single *Hyacinths*, and the *Oriental Narcissus*, I shall proceed to direct their blowing in water, for which purpose you must be provided with the early blowers of these flowers, to be set on glasses made for that purpose, which is to be filled within a quarter of an inch of the bulb with fresh clear soft water; in fourteen days you will perceive them to send down their fibres; the water must be renewed once every four weeks, and once every week, as soon as you perceive these flowers preparing for bloom. When their flowers are entirely faded, take their roots and plant them into good, rich, light, fresh earth, covering them to the depth of four inches, first spreading out their fibres, and tying their stem and leaves to reeds or wires; and when they have faded, smooth the bed over, leaving the roots in the ground for that season; covering them well with rotted tan in the winter, and to manage them in the spring as you do the others; but if, in the spring, after they have been in the water-glasses, you observe their flower-stems to be very small, nip them off before they expand their blossoms, in order to strengthn the root.

All the early single-white and Blues, double Whites, viz.

Morgen Staar	Koning van Groote Bri-
Prins Frederic van Baden	tain
Durlach	Comptroller General.
Coralline	

Double Blues.

Kroon van Brabant	Souveraigne
Agaet Mignion	Landgraaf van Soutzern-
Passetoute	berg.

These doubles blow best in water, as does the *Oriental Narcissus*, such as the *Soleil d'Or*, *Basselman Major*, and *Passe Basselman*.

There

There being many who are fond of this flower, yet for want of leisure, are not able to attend to more general directions; therefore, for their ease, I shall lay before them such an abstract, with some observations as, I flatter myself, will be no less acceptable than effectual.

*****!*****

Some Directions to be particularly attended to, in Regard to the Hyacinth.

1^{mo}. **T**O judge if the soil, wherein you plant your *Hyacinths*, be agreeable to them, weigh the roots, marking down their respective weights; and when you have taken them up, and they are dry, weigh them again, and if found lighter than before, be assured your ground has been too poor, but if your roots are increased in size, and are yet lighter, then the dung has been too soon set to work, that is, before it has been sufficiently rotted, or, which is more probable, that it has been horse, instead of cow dung, which, when mixed with sand, is too powerful.

And, 2^{do}. To their juices not flowing regularly, must be attributed their rotting, for when they stagnate, they cannot maintain their coats or skins, when rottenness ensues.

3^{do}. I have often observed at lifting, that their roots are seemingly bursting on one side, and sometimes at the lower part of the bulb: This is a sure sign, that their fibres have been cramped in going down into the soil by clay or stones, or that they have perished in the winter by stagnated water, or, not sufficiently covered, so that their fibres have perished by cold, or, have been planted in a too hot soil, and not lifted in proper time.

To remedy these evils, let your composts be rotting for two years, to be incorporated at least one before used, excluding clay or any coherent particles; but let it be rich, fresh, soft, and very spongy, so as to allow their fibres to play at pleasure, for upon their number depends your success; cover their beds in winter, with old tan from the alleys, and over it lay pease haulm, when it will be beyond the power of frosts to harm them. And, *lastly*,

Y

observe

observe to lift the bulbs in five or six weeks at least, after their flowers are quite faded (ripening and managing them, as I have already directed under the article of *Hya-cinths*) otherwise, their roots will rot by a super-abundant nourishment. On the other hand, should they be lifted too soon, their growth will be checked, so that they will produce but a weak flower.

It is necessary to observe, that the earliest sorts should be planted four or five inches deep; but the late blowers no more than two and an half: This caution is necessary, as the latest blowers are longer in striking their fibres than the early, and should they have more covering they would not appear, and more so as they have an additional covering in winter. This depth encourages their early appearance in the spring for blowing; which is of singular use, as it forwards their lifting, which prevents their rotting, or degenerating: This depth also encourages their off-sets to be more numerous, and every way better than if they were planted deeper.

Let me here add two flowers, that are much esteemed in the *London* gardens, the first is called the *Reseda Ægyptiaca minor floribus odoratissimis*, or yellow flowering *Ægyptian Bastard Rocket*, with most sweet smelling flowers. This is an annual, and must be sown in *March* upon a hot-bed, and when the plants have acquired strength, should be put upon another hot-bed, to bring them on, and may then be potted, and placed in rooms, to perfume them with their fragrant odours (which resembles the scent of a ripe raspberry,) or they may be planted into warm borders, where they will seed well; and if you have a moderate stove, they will flower as well as seed there in the winter. This plant is named in the *Dutch* catalogues, by the unintelligible name of *Gingabo*, but in *London*, it is called the *Mignon*, or *Minionette d'Ægypte*. The other flower is the *Rapuntium flore maximo coccineo spicato*, or red cardinal flower: There is also a blue of this plant, but the red-flower is preferable, as it excels all others in the richness of its colour. The seed is to be sown in pots filled with undunged, light, fresh virgin earth, to be covered very lightly; and in cold weather, to be set under bell-glasses, suffering them to have sun until eleven in the forenoon only, watering them

them gently; after they have come to some growth, transplant each single into pots, where they may continue until *March*, when you must give them larger pots, filled with the same earth in which they were sown, keeping them in the green-house until *May* or *June*. When they begin to blossom, you may set some in chambers with the *Tuberoſe*, and the *Reſeda* or *Baſtard Rocket*, where they will make a handsome appearance; the blue flowered will ripen its seed, if the long ſtems are tied up, which may be ſown as ſoon as ripe, to be ſet in the green-house, or into an airy glaſs caſe, to ſcreen them from froſt, they appear early the next ſpring. You may alſo encrease them by dividing their roots; which work ſhould be performed in *March*, but at no other ſeaſon. When the plants are growing, and when they are in flower, they muſt have plenty of air and water; but little of the latter in winter. The *Ruyſcbiana flore caruleo* thrives well with the ſame culture; it is a fine flower, and ſhould not be wanted in curious gardens.



Directions for raiſing the Polyanthos Narcifſus.

THE next beauty which appears in the ſpring, is the *Polyanthos Narcifſus*, of which there are many ſorts in Mynheers *Dirk Voerbelms* catalogue, as alſo in Mynheer *Voerbeld* and *Van Zompel's*. I ſhall confine myſelf to the culture of their roots and off-ſets only, as ſeedlings are ſeldom raiſed here.

Having made choice of a ſituation, where they may be free from great winds, the earth which has been employed one year in the *Hyacinth* bed, with a third more of very old and well rotted tan, will ſerve them; firſt removing three feet and one half of the garden ground, when the compoſt is to be laid in, previouſly laying down ſome old rotted tan, to riſe within ſix inches of the bottoms of the bulbs, and within two inches of the ſurface of the earth; the roots are to be planted at four inches diſtance, root from root, and four deep in the compoſt; and when the froſts ſet in for good, lay over them four inches of rotten tan, which, in *March*

may be taken off, observing never to plant them earlier than the first of *October*; otherwise they are apt to spring in *January*, when the frost is severe; and which will most certainly destroy them.

The *Dutch Florists* always lift them as soon as their leaves are quite faded. This is their practice, but when you are for having off-sets, they must remain for two years in the ground; the autumnal sorts, and the *Belle Donna's* I planted in pots, filled with the earth that had been one year in use for my *Hyacinths*; but of these I shall be more particular when I treat of the culture of the green-house and stove-plants.

Of the *Polyanthos Narcissus*, I would chuse to have four of each that are in *Voerbelms* catalogue, which are most charming flowers, such as the *Soleile d'Or*, the *Basselman major*, *Basselman jeune*, or yellow, *Grooten Czaar*, *Tassette minor medio luteo*, calice pleno major, *Witte non pareille*, *pretiose*, and many other sorts.

Their off-sets require no other culture than the mother roots, and they may be allowed to continue two years in the earth, until they acquire strength to blossom, but not longer; observing to cover them in winter, with four inches of old well rotted tanners bark, or, where it is not to be had, a good covering of straw, or pease haulm; as soon as they are of the proper size to blossom, you may plant them with the other roots. I always lifted them as soon as their leaves were quite faded, when I laid them in the root-room, to dry with the wind. The *Jonquils* I planted in the compost just mentioned, adding thereto one half of light, fresh, sandy soil; first removing the garden earth to the depth of twenty two inches below the surface of the path-way, laying at the bottom some gravelly earth and lime rubbish, to the depth of five inches, beating the same hard with a spade, over which I laid my compost, planting my roots three inches deep, laying over them two inches of good garden mould; by this contrivance all under water was carried off, and the fibres of the *Jonquils* so confined as to occasion them to blossom fair. I constantly observed to lift them once every two years, and sometimes every year, just as I observed them to flower strong or otherwise; and in winter laid on them some rotted tan or straw.

Directions



Directions for raising the Auricula Urſi, or Bear's Ear, as well by ſlipping as from Seed.

THE next flower which attracts our attention, is the *Auricula Urſi*, or Bear's Ear, which for its great variety, and its ever-green leaves, is extremely pleasing.

The flowers that are most esteemed, are such as have a strong erect stem, short pedicles or foot-stalks, bright glowing well shaded colours, and those being different distinctly and well marked, with a round, florid, large eye, together with well expanded bells, which must not crowd one upon another, but show themselves distinctly, with a narrow funnel, inclosing well proportioned *Filaments*, and to which their large leaves add much beauty.

The soil in which these plants delight, is a free fresh loam, taken from under a turf, which has not been stirred for many years, and is what we call virgin-earth; to which must be added an equal quantity of compost, made up of three parts old rotted three years old cow dung, and one of sea, or river-sand, excluding horse-dung: These are to be in separate heaps, until a few days before using, otherwise they will breed vermin, which is very injurious to the *Auricula*. When you set them in pots, lay an oyster shell over the hole, with the concave side downwards, for the readier passing off of the water, for should it stagnate it would be very hurtful to them.

The best time to take off the off-sets from the *Auricula*, is about the 12th of *August*; they may be also taken off from *February* to *May*, provided it can be done without wounding the root, of which you should be very careful, as it's now your flowers are coming to blow; but should this not be practicable, the flowers that show from the suckers are to be taken away, as soon as the stalk comes to its height, when the flower is to be taken off under the bud; and should the plants be brought from a distance, it will be necessary to trim their roots, to cut off all dead fibres, and to shorten their long ones, when all

the old earth is to be washed off, in order to re-pot them; first fill the pot half full or a little more, with the compost just prescribed; then cut a little off the extremity of the root of the plant, and if you observe, that it is white without any yellow or brown spots in it, the plant is sound, but if you perceive any of these spots, you must cut as long as they appear, and when your plant is ready, let the earth rise in the middle of the pot, whereon place the *Auricula*, spreading down its fibres, which are to be covered with the compost rising to the setting on of the leaves, then place the pot in a vessel of water half way deep, when the water will ascend to the root, which you will observe by the earth spotting black, then it is to be set in the shade, so as not to have the sun for one month at least, keeping them always moist about their fibres, but not wet. Your plant in a month will strike root, when it must not have much water, but rather allow it to get rain, and that but moderately, and not in sudden dashes, it must also be defended from sudden blasts of wind, and storms; but in moderate weather it must be exposed to a free air, soft showers, evening and morning dews, &c. Should the leaves of the plants be perceived to droop, cover them with pots or small hand-glasses, (except when moderate showers fall,) until they recover their strength, and you observe them growing. If these plants offer to flower in autumn, they may be allowed to run their stems up to their height, then nip them off below their flower-buds; but this you must not do, until you perceive a new heart rising by the side of their flower-stems, when they are not to get any rain or water, for ten or fifteen days, but what you give them.

In this shaded situation, and under this management they must remain until the 20th of *October*, when they should be placed in your *Auricula* frame.

Your plants being in your frame, you are to keep them in a growing state; and when frost (that bane to vegetation) spreads its dominion over our climate, you must endeavour to sustain your plants in that vegetation they had attained to, and in such proportion as the inclemency of the winter will permit.

The humidity of the air in winter will keep your plants in a sufficient moist state, which is all that is now required, but if from an accidental state of the weather, you should

should find they want water, let it be given in small quantities, and that from a small can, with a spout like a tea-kettle, drawing the earth quite up to the neck of the plants, in a gentle slope, that the water may run off, as not any must touch the heart, for at this season it would rot them, and you are more particularly to observe this direction in times of frost, or when it is expected, and not upon any account to water them, until a thaw sets in. In mild weather, they must have air given them, of which no opportunity should be neglected, for upon this depends the health of your plants. It will also be necessary to examine the roots of your plants by gently uncovering them. If they appear white and large, they are in health; but if brown and soft, they have certainly got too much water, which at this season is very hurtful to them, and with which they should be indulged only in mild weather, or after great winds; and from the time you set your plants in the shade, neglect no opportunity to give them the influence of the sun's rays until the beginning of *March*, as they will refresh them exceedingly. By the end of *January*, if the weather is mild, you must give new earth to your *Auriculas*, or as soon after as the weather will give you an opportunity, by removing the old so low as their fibres, which, by no means injure; then water them, to settle the earth, and shade them for a fortnight, when you may indulge them with soft showers and sun-shine, protecting them from harsh winds and frost. By the first of *April*, you must remove the plants to the stage for blowing, which is to be constructed with rows of shelves, one above another, and covered at the top to keep the plants from wet; the stage must be open to the morning sun, and protected from that of the mid-day; the better to effect this, it is recommended to have a curtain of strong sheeting, to let down according to the sun's height, and as a defence against high winds, and to keep off showers; and in order to give the curtain a steadiness, let it be leaded at the bottom; but more effectually to prevent it from injuring the pots by any motion, let an upright or two be placed before it; and as but one side of the stage is open to the air, and that too opposite the north, turn the pots about as often as you perceive their flower-stems inclining to it;

and as soon as you perceive the beauty of the flower is going off, set them on the railed stage, No. 2. of which I have given an engraved representation. When your flowers are in blow, give them all the air you can, but protect them from the sun and wind, giving them a good watering twice a week, or oftener as you see occasion, picking off all dead or dying leaves; and whenever you do this, be careful they do not come off with strings peeling down the plant; in that state it will be better to take them off with the point of a knife. Such as you would chuse to have seed from, must be managed in another manner.

In *February* or *March*, when you give new earth to your *Auriculas*, observe if they have well-rooted off-sets: If they have, take them off (observing the caution in page 313) and when potted, place them in a shady situation, not exposed to storms. You may continue to take off-sets, from *February* until *May*: They will strike in three weeks; and by autumn, if well taken care of, they will be pretty stout. At this time Florists are particularly desirous of removing the off-sets, that the *Mother-Plant* may not be impeded, but be enabled to bring forth a strong and well formed flower.

In *October*, set the off-sets in the shade, or in the frame, to be managed as I have directed for their mother-plants the preceding winter. In *February*, when you earth up the old plants, prepare a bed of fresh virgin-loam only; which will be much the better to be often turned in the winter, to be moulded by the frost. Make this bed two feet deep, and three broad; raising it three inches above the path-way, allowing it three weeks to settle before planting; then take three dozen of your strongest off-sets, or even some of the mother-plants, if you should not have sufficient of the first; take them out of the pots with their whole earth, make pits in your bed, and plant them as deep as they were in their pots, eight inches asunder every way; and in dry weather, give them some water in an evening: Here they will flower, and produce you much more and better seed than your plants in pots. This bed must be in a well sheltered spot, so as to have the sun from morning till eleven in the forenoon.

Your

Your *Auricula* seed will ripen in *July*, which you will know by their pods turning brown and bursting; then look over the plants every day, gather them as they ripen, and put them into small paper bags, hanging them in a window to get the sun for ten days to prevent moulding; but do not take the seed out of their husks until you sow them, which should be done the first week in *February*, and in virgin-earth, mixed with one third of rotten willow-wood, and some of the earth about them; the seed which are to be sown in large pots are not to be covered to scarce a quarter of an inch, to be constantly kept in a shaded situation, quite excluded from the sun's rays, as they would kill all the young plants, which will shew themselves in *April* or *May*; they are to be kept moist, and to be transplanted into pots in *September*, filled with the same compost in which they were sown. By the end of *October*, let the pots be set where they may have the sun's rays during the winter, and about the first of *March*, set them into a free, open situation, but well sheltered from storms.

When you transplant, or thin these plants, lay the surface of the earth in the seedling pots smooth; as many of the young plants will not come up, till the second year after sowing.

In *September*, re-pot the old plants, off-sets and seedlings into fresh earth, whereby you will never fail of a good succession of fine flowers: In two or three years, your seedling *Auriculas* will show their beauties, when you will distinguish those that merit your care.



Description of the Frame necessary for the growing and Protection of the Auricula.

HAVING already described the stage for blowing the flowers, we shall give a description of that which is necessary, for affording the plants the protection they require from cold, violent rains, storms, and a hot sun. Its form resembles that of a hot-bed frame, but open on all sides, whose dimensions and form will be better

ter understood, by viewing the engraved plate, Fig. 1. The other frame, Fig. 2. is for the reception of the pots, except when they are on the blowing stage, the pipped circles show how they are to stand by each other. Its height from the ground, is to be no more, than that which is given it by a *Dutch* tile, as the situation of the frame must be very near the earth, in order to keep the compost in the pots moist. As soon as its necessary to shade the plant, whether from the inclemency of the weather, the sun's rays, wind or rain, the frame with the pots is to be covered with the other, which for the purpose of protection is to have a covering of painted cloths, with rollers at each end, which are to be laid over the frames, entirely covering the sides, but leaving the ends open. These rollers not only keep the cloths down, but are of use in taking them up, when they are to be removed.

Mr. *Bullen* formerly of *Tenibinch*, in the co. of *Dublin*, being remarkable for his knowledge in flowers, we shall introduce here, his method of raising and cultivating the *Auricula*, as communicated by Mr. *Bullen* of *New-street*.

He recommends three different sorts of composts for the purpose, which are, first, to one bushel of sea sand, one of sandy loam, and ten of well rotted cow dung. The second, to half a bushel of sea sand, add one of loamy soil, and one of Melon earth. The last, is a mixture of cow and horse-dung, with one part sea sand, and one of sandy loam; the dung to be two or three years old, to be well and equally mixed together, and turned for two months, keeping it clear of weeds.

N. B. All mixed soils or composts, should lie some time for their parts to incorporate with one another, before they are used.

Mr. *Bullen*'s directions being laid down in the kalendar way, we shall keep to it.

Directions

Fig. 1.

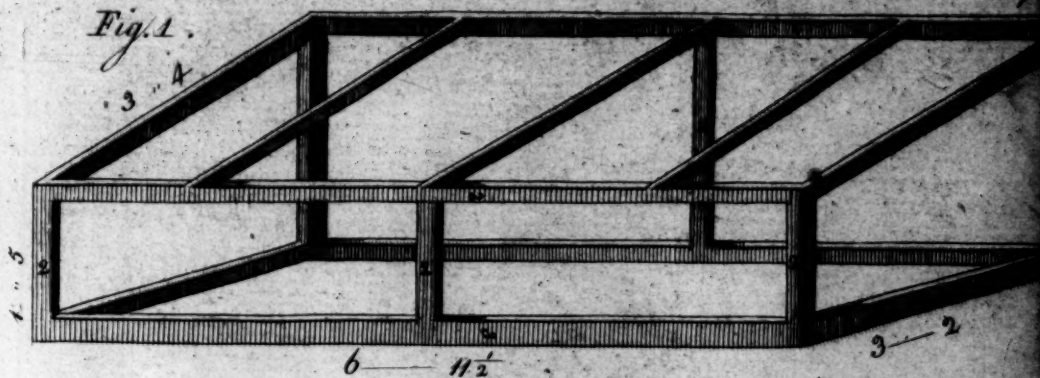
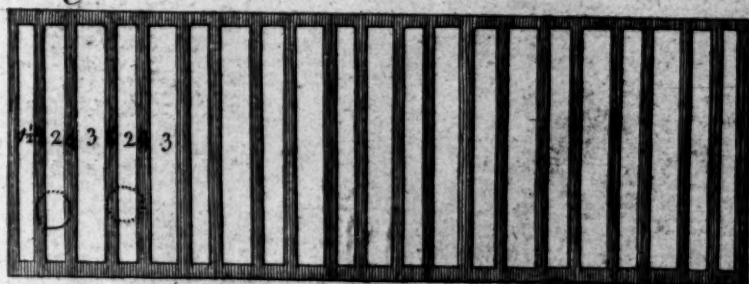


Fig. 2.







*Directions for the managing the Auricula, as laid down by
Mr. Bullen.*

January. IF the weather is open, the trusses will soon appear, when you are to earth up your pots, observing to give a gentle fall to the earth from the plant, to the rim of the pot, below which it should be a small matter, in order to retain the water now given them, which is not to touch the plant; they are then to be placed under hoops, about six rows deep, the hoops are to rise 14 inches above the pots, when a broad mat will cover them on both sides; which is to be laid on every night; let not any rain or snow come to them; and when the frost encreases, double your covering, but never use straw or pease haulm, &c. as they bring vermin; let the situation for your flowers be warm, and where they will enjoy the winter sun, having the protection of a hedge, pale, or wall, from cold winds.

The frame of which we have just given a description, will very well answer the purpose, and save much trouble.

February. You are to attend to the former month's directions, and to indulge them with warm rains provided they are not too great; continue to cover every night, keeping clear of vermin; take off such dead leaves, as come off easily, which they will do when perfectly decayed, and no other. Such seed as you would chuse to sow at this season, must be put down in pots or boxes of light rich earth, to be placed where they may have the morning sun until *April*; but the latter end of *August* is the time I would chiefly recommend for this work.

March. Let your plants have such showers as fall, but as the air is frequently very dry, water about four o'clock in the evening without the rose, that the water may run round the pot without touching the plant, a little of which they should not want: Should too many heads appear on your plants, slip such off as will not wound, or too much disturb the roots, when your main truss will blow the better; the heads you slip off are to be put into small pots, but I would advise their being set round
your

your carnation pots at this time of the year, but not more than three or four in a pot, and they close to the side of it; observe always before you pot them, to place convex oyster-shells over the holes in the pots, to let off the water, the earth in your pots you must never suffer to be dry, the plants are now to be placed under frames, glasses, or mats, keeping them free from frost and too much sun, and clear of vermin.

The seedlings are to be placed, where they may have the morning sun, until ten o'clock, as their plants will begin to appear, and should they be exposed to the full sun but one day, it would destroy them; water is to be given them in dry weather, but in a gentle manner, lest you wash them out of the ground.

April. This flower comes on now very forward, so that you may stage many in a day: such of your two years old plants as will not blow, pull to pieces, and prune to the quick, i. e. cut the red speck out of their roots, and prune their fibres; setting two or three in a pot, according to their size: The plants which were taken off the last *August*, raise out of the pots with their earth to them, to be put into smaller pots, observing that the bodies of the plants rise above the mould; then water with the rose to settle the earth, but afterwards water without it; they are to be set in the shade until *August*, observing to keep them moist; the reason for not using the rose is, that it washes the meal into the heart of the plant, which occasions them to rot, this danger is not to be feared from rain, unless very violent, and attended with storms; the pots are now to be set in the frame. The plants from which you expect to have seed, should be removed into the open air as they are now in full blow, and placed where they may have the morning sun, without which they will not produce good seed. Your seedlings must be carefully protected from the sun, and kept in the shade until *August*, when they may be planted out; at this season they must be frequently refreshed with water.

May. Your blow being now over, remove your plants from the stage, placing them in such a situation as they will meet the morning, or a little of the afternoon sun, to be watered every other day if required, and kept clear

clear of weeds, dead leaves, and from the dripping of trees.

The latter end of this month, look over your plants from which you intend to have seed, the approach of its ripening you will know by the stalks beginning to grow yellow; and in the top of the round seed-vessel will appear a small hole, which signs if you do not carefully attend, the seed will be shed, but as soon as you perceive these appearances, cut them down, keeping the tops upright, otherwise the seed will fall out.

June and July. Keep your plants free from vermin; at this season you are to be particularly watchful of a little maggot or grub, which eats the leaves and small shoots, and are to be found in the body of the plants; let them enjoy such rains as fall, refreshing them with water when there is occasion.

The seed is to be gathered as it ripens in a dry morning, to be laid on sheets of paper, and placed where they will have three hours sun, for a month, until they are out of danger of moulding, then they are to be laid in a dry place until the middle of *August*, when the seeds may be cleaned out.

August. You are now to cut out your plants that blowed with three or four pips, in order to shift them into larger pots, likewise those that were taken off the old roots the *March* and *April* before; some of your plants will now want to be separated; the young heads are to be kept three weeks longer in the shade, but the strong plants must now have the sun admitted to them in the frames. Keep your plants clean, as some of them will now begin to blow, and such as do, only allow one pip to open, it will be proper to nip off the flower when the stalk is fit to be pulled out; and as it grows in the middle of the plant, it leaves a hole where the water lodges, which will rot the plant if not prevented; to remedy this evil, you must cover the plant with a glass; and as sometimes the stalk will not come out readily, but rot down, such must be taken out with the point of a knife, setting a glass over it, until the hole is closed, which must be carefully attended to, as plants are often rotted by the lodgment of water, made where the stem is taken out.

The

The beginning of this month transplant your seedlings into a bed or boxes of the same sort of soil, as they were sown in, to be set at the distance of three inches square from each other, watering them after planting, and if in beds, they must be shaded every day, until they are well rooted, but if in pots or boxes, they may be removed to a shady situation.

The latter end of this month is the best time to sow the seed, whether in pots or boxes, the latter must not be less than six inches deep; in them lay two inches of sea-coal cinders, and over them spread good fresh light sandy earth, mixed with very rotten cow-dung, or tanner's bark, to the depth of three inches; over which sift some earth taken out of hollow willow trees, until the pots or boxes are full, and then sow the seeds on the top, without any covering of earth, only pressing them into the mould with a piece of flat board, to settle them below the edges of the box, &c. that in watering the seeds may not float over their brims: this seminary must be continually refreshed with water, in small quantities at a time, so that it may never be without a constant moisture, otherwise the seeds will not come up. It is necessary to cover the boxes, &c. with a net or wire, to prevent the cats or birds from destroying or burying the seeds too deep. Set your pots, &c. where they may have no more than the morning sun until *October*.

September. Your young plants are now to be brought out of the shade, which you are not to suffer to be too dry, keep the frost from them, and they will grow all the year, some of them will show flowers in the spring.

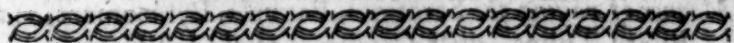
October. The directions of the last month to be observed in this, tho' more trusses will appear.

The boxes, &c. of seedlings are to be removed to a situation where they will have the noon sun.

November and December. As the frost now begins to come in severe, which is very injurious to these plants, the sun melting it into the body of the plants, which freezes again at night, some shelter is absolutely necessary, either with mats, boards, or glasses; when these are wanting, lay the pots on their sides, as the plants will be less injured than if they stood upright; they are to be kept dry until *January*.

Now

Now remove the boxes, &c. of seedlings into a warm situation, there to remain until *March*; let them be sheltered from great rains and frost.



Some general Directions in the Care of the Auricula, as recommended by Mr. Miller.

THE compost he directs is, a fresh light sandy mould, mixed with well rotted cow dung. His *first* general direction is, in winter to protect your plants from much rain and cold winds, and in *March* when their buds are coming forward, to protect them, giving them free air in mild weather. *Second*, About the beginning of *February*, when the weather is mild, new earth your pots, taking away the old as low as the root, and that your plants may blow with single heads, remove your off-sets as soon as possible. Such flowers as appear in autumn pinch off.

Third, The pots to be protected from frost, when they are budding their flowers.

Fourth, When the blossom-buds begins to swell, protect them from violent showers, in order to preserve the *Whitemeal* or *Farina* that appears on them, and to give the plants as much mild air as is possible, and to have frequent, but gentle waterings.

Fifth, When the flower begins to open, place the pots on the blowing stage, to be indulged with the morning sun, and to be protected from that of the mid-day and rain; and when the bloom is going off, set out such plants as are intended for seed in the free air, to be indulged with falling showers.

Mr. *Miller* directs the bed for the seedlings to be prepared thus: Let half a foot of well rotted cow dung, be laid ten inches under the surface, to be well trod down, to preserve the plants from being lifted by worms, and which will much forward them, when their fibres enter it.



Manner of raising the Serotines, Baguets, Bybloomens, and Bifard Tulips, with Catalogues of the best Flowers.

THE next plant, which attracts our attention in the spring is the *Tulip*.

These are divided into *Præcoces* or earlier, and *Serotines*, or late blowers, which are divided into *Baguets*, *Bybloomens*, which are a sort of *Baguets*, and into *Bifards*—The varieties of this flower are prodigious, and to give a catalogue of them would be needless, since every year produces new ones.

I had the best kinds, from Mynheers *Voerbelms* and *Van Zompell*, *Florists* at *Haerlem*, and notwithstanding the varieties of their sorts, they were always very distinct.

I bought from them a good number of the best *Præcox*, or early blowing *Tulip*, which I planted in the same ground I had the year before blown my *Hyacinths*, stirring up the beds, to the depth of two inches below the path-way, and adding to them a fourth part more of fine well prepared white sand, when I planted them three inches deep, and nine inches root from root, and used the same covers in the spring, as I had for my *Hyacinths*; for if these flowers which shew their flower-buds by the first of *March*, are not carefully covered, they blight, and seldom come to perfection: The neglect of them in this particular, has brought them into the discredit of not being sure blowers, which is only to be attributed to mismanagement. These early *Tulips* must be lifted three or four weeks sooner than the others, and properly distinguished in the root-room. They are to be replanted in the beginning of *September*; observing that their situation be rather dry than moist, and well sheltered from winds, which in the season of their bloom, are very piercing and cold. The depth given to these roots in planting, is the better to enable them to support their long stems, and heavy heads when in bloom; and the covering them so early, as when their flower appears, is to protect them from

from the wind, which has so much power on them, as frequently to loosen their fibres in the ground, which greatly injures the root as well as the flower.

All the *Serotines*, or late blowers, such as *Baguets*, *Bybloomens* and *Bisards*, I planted from the beginning to the middle of *October*, at farthest.

And first, of the *Baguets*. I shall give a list of the best, old, and good standard flowers, in *Voerhelm's* catalogue, the better to avoid 'mistakes, these here recommended I had in the highest perfection.

N. B. The *Astras* in the catalogue distinguish the most capital flowers. *

Baguets.

* Arceus	Amazone
Admiral General	Belle Africa
* Admiral Gulde Leuw	Bellona
Agricola	Bran-v-lag,
Aimable	Brunette Royale
Alexander de Groot	Cabinet Royale
Conquette d'Houstrive	Narcissus
Conquette van Royen	Noord Star
Duc d'Argyll	Nova
Duc d'Chartres,	* Seven Provinciën
Duc de Luxemburgh	* No. 2. Oortman
Duchesse de Bourgogne	Parnassus
Generaal Tobb	Prince van Baden-Dur-
* Graaf van Moorst	lach
Gratiosa	Semper Augustus
Hippolytus	Sphæra mundi
Hoff van Holland	Tresoriere
* Hollandia	Triumph van Leyden
Koningin van Vrankryk	Vegt Jewell
* Kroon P. van Danemar-	* Jewell van Europe
ken	Veltheer
* La Magnifique	Vergulde Kam
La Noblesse	Whitte Leeuw
Leopoldus	Jewell van Flora
Merveille du Monde,	* Mount van Holland
Merveille d'Utrecht	Morrelly.

Bybloomen's, more particularly marked *Baguet, Rigaut, Tulips.*

Baguet Rig. Battaille	do Excellentissimo
do Admiral	do Bonaventure
do Bellissimo	do La Magnifique
Baguet Rigaut Cæsar	do Le Roy
do Eleæteur	do L'Empereur
do Frangebruyn	* do Rose Grandissima
do Hercules	* Beauregard Akerkamp
do Hector	Beauregard Admiral
do Imperatrice	* Beauregard Merveilleuse.
do Elegantissimo	

These are fine, large dark coloured flowers, very strong, and some of them so large, that when they are in perfection of bloom, will contain an *English* pint of liquid within their petals or flower-leaves.

Bybloomen Tulips.

Curius	Koning van Siam
Rex Indiarum	Koning van Pruissen
Dame de France	L'Eminence
* Cupido	Erfstad houdereffe
La Rupelmonde	Cardinal Infant
* Grande Fidelle,	* Parroquet Rouge
Incomp. Brunon	Overwinnaar
Incomp. de Grauw	Porcia
* Grand Roy de France	Reine de Congo
* Hauteffe Rose	Reine de Guine
* Hauteffe Grisdeline	Rose Triumphe
Hauteffe Violette	* Rose Feu du Grand Va-
* Hertog van Lancaster	leur
Incomparable Arch - Du-	Stadhoulder General
cheste	Socrates Verheterde
* Incomp. Favourite	* Triumphe de Lisle,
Incomp. Premiere noble	do No I.
Incomp. Florida	Triumphe Grisdeline
Jeuweell van Dort	* Duc de Toscane,
Jeuweell van Hollande	* Reine d'Amazones
Jeuweell van Zeeland	Jeuweell van <i>Voerbelm</i>
Keyserin van Java	Gagne la Rache.

As I never attempted raising *Tulips* from the seed, being otherwise too much engaged, I shall recommend the method of my friend, Mr. *Miller*, whose knowledge in these particulars is very extensive, and may well be depended on.

Directions



Directions for raising Tulips from Seed, as practised by Mr. Miller.

“THE manner of propagating these flowers from seed is as follows: You should be careful in the choice of the seed, without which there can be little success expected. The best seed is that which is saved from breeders which have all the good properties of good flowers for the seeds of striped flowers seldom produce any thing that is valuable.

“The best method to obtain good seeds is to make choice of a parcel of such breeding *Tulip* roots as you would save seeds from, and place them in a separate bed from the breeders, in a part of the garden where they may be fully exposed to the sun, observing to plant them at least nine inches deep; for if they are planted too shallow, their stems are apt to decay before their seed is perfected.

“These flowers should always be exposed to the weather, for if they are shaded with mats, or any other covering, it will prevent their perfecting the seed. About the middle of *July* (a little sooner or later, as the summer is hot or cold) the seeds will be fit to gather, which may be known by the driness of their stalks, and the opening of the seed vessels, at which time it may be cut off, and preserved in the pods till the season for sowing it, being careful to put it up in a dry place, otherwise it will be subject to mould, which will render it good for little.

“Having saved a parcel of good seed, about the beginning of *September*, is the best season for sowing it, where there should be provided a parcel of shallow seed pans or boxes, which should have holes in their bottoms, to let the moisture pass off; these must be filled with fresh sandy earth, laying the surface very even, upon which the seeds should be sown as regularly as possible, that they may not lie upon each other; then there should be some of the same light sandy earth sifted over them about half an inch thick. These boxes or pans, should

be placed where they may have the morning sun till eleven of the clock, in which situation they may remain until *October*, at which time they should be removed into a more open situation, where they may enjoy the benefit of the sun all the day, and be sheltered from the north winds, where they should remain during the winter season, but in the spring, when the plants are up, they should be again removed to their first situation; and if the season should be dry, they must be refreshed with water, while the plants remain green, but as soon as their tops begin to decay, there must be no more given them, lest it rot their tender bulbs, therefore the boxes should be placed in a shady situation during the summer season, but not under the drip of trees.

“ These plants, at their first appearance, have very narrow grassy leaves, very like those of onions, and come up with bending heads, in the same manner as they do; so that persons, who are unacquainted with them, may pull them up instead of grass, whilst they are very young, before their leaves are a little more expanded, which is rarely performed the first year, for they seldom appear before the middle of *March*, and commonly decay about the latter end of *May*, or the beginning of *June*, according as the season is hotter or colder.

“ The weeds and moss should also be cleared off from the surface of the earth in the boxes, and a little fresh earth sifted over them soon after their leaves decay, which will be of great service to the roots. These boxes should be constantly kept clear from weeds, which, if permitted to grow therein, when they are pulled up, their roots will be apt to draw the bulbs out of the ground. At *Michaelmas* they should be earthed again, and as the winter comes on, they must be again removed into the sun as before, and treated in the same manner, until the leaves decay in the spring, when the bulbs should be carefully taken up, and planted in beds of fresh sandy earth, which should have tiles laid under them, to prevent the roots from shooting downward, which they often do when there is nothing to stop them, and thereby they are destroyed. The earth of these beds should be about five inches deep, over the tiles, which will be sufficient for nourishing these roots while they are young.

“ The

“ The distance, which these young bulbs should be allowed, need not be more than two inches, nor should they be planted above two inches deep; but toward the end of *October*, it will be proper to cover the beds over with a little fresh earth about an inch deep, which will preserve the roots from the frost, and prevent moss or weeds from growing over them; but, if the winter should be very severe, it will be proper to cover the bed either with mats or peas haulm to prevent the frost from entering the ground, for these roots are much tenderer while young, than they are after they have acquired strength.

“ In the spring the surface of the ground should be gently stirred, to make it clear, before the plants come up; and if the spring should prove dry, they must be frequently refreshed with water, during the time of their growth; but this must not be given to them in great quantities, lest it rot their tender bulbs; and when the leaves are decayed, the weeds should be taken off, and the beds covered with fresh earth; which should also be repeated again in autumn.

“ In these beds the bulbs may remain two years; during which time they must be constantly kept clear from weeds, and in the spring and autumn fresh earthed, in the manner already directed; after which the bulbs must be taken up, and planted into fresh beds, at four inches asunder, and as many deep, where they may remain two years more; during which time they should have the same culture as before; and after that, the bulbs being large enough to blow, they should be taken up, and planted in fresh beds at the usual distance, and in the same manner as old roots; where, when they flower, such of them as are worthy to be preserved, should be marked with sticks, and at the season for taking them up, they must be separated from the others, in order to be planted as breeders in different beds; but you should by no means reject the others until they have flowered two or three years, as it is impossible to judge exactly of their value in less time; for many, which at first flowering appear beautiful, will afterwards degenerate so as to be of little value, and others, which did not please at first, will frequently improve; so that

they should be preserved until their worth can be well ascertained.

“ In this method many sorts of new breeders will be annually raised, from which there will always be fine broken flowers, which, not being in other hands, will enhance their value; and it has been entirely owing to this method of raising new flowers that the *Dutch* have been so famous, amongst whom the passion for fine *Tulips* some time ago reigned so violently, that many of the florists near *Haerlem* have often given a hundred ducats for one single root, which extravagance was the occasion of an order being made by the *States*, to limit the utmost price that should be afterwards given for any *Tulip* root, were it ever so fine.

“ Having thus given an account of the method of raising these flowers from seeds, I shall now proceed to the management of those roots which are termed breeders, so as to have some of them every year break out into fine stripes.

“ There are some who pretend to have a secret how to make any sort of breeders break into stripes whenever they please, but this, I dare say, is without foundation: for from many experiments which I and others have made of this kind, I never could find any certainty of this matter. All that can be done by art, is, to remove the roots every year into fresh earth of different mixtures and a different situation; by which method I have had very good success.

“ The earth of these beds should be every year different, for although it is generally agreed that lean hungry fresh earth hastens their breaking, and causes their stripes to be the finer, and more beautiful, yet, if they are every year planted in the same sort of soil, it will not have so much effect on them, as if they were one year planted in one sort of earth, and the next year in a very different one, as I have several times experienced; and if some fine striped *Tulips* are planted in the same beds with the breeders intermixing them together, it will also cause the breeders to break the sooner.

“ The best compost for these roots is a third part of fresh earth from a good pasture, which should have the sward rotted with it; a third part of sea sand, and the
other

other part sifted lime rubbish; these should be all mixed together six or eight months at least before it is used, and should be frequently turned in order to mix the parts well together. With this mixture the beds should be made about two feet deep, after the following manner: After the old earth is taken from out of the bed to the depth intended, then some of the fresh earth should be put in about eighteen inches thick; this should be levelled exactly, and then lines drawn each way of the bed, chequerwise; at six inches distance, upon the centre of each cross, should be placed the *Tulip* roots in an upright position, and after having finished the bed in this manner, the earth must be filled in, so as to raise the bed six or eight inches higher, observing, in doing this, not to displace any of the roots, and also to lay the top of the beds a little rounding, to throw off the water.

“ There are many persons who are so careless in planting their *Tulip* roots, as only to dig and level the beds well, and then with a blunt dibble to make holes, into which they put the roots, and then fill up the holes with a rake, but this is by no means a good method; for the dibble in making the holes, presses the earth closely on each side, and at the bottom, whereby the moisture is often detained so long about the roots as to rot them, especially if the soil is inclinable to bind; besides, the earth being hard at the bottom of the bulbs, they cannot so easily shoot forth their fibres, which must certainly prejudice the roots.

“ These beds should be sunk, more or less, below the surface, according to the moisture or dryness of the ground, for the roots should be so elevated as never to have the water stand near the reach of their fibres in winter, for moisture is very apt to rot them; so that where the soil is very wet, it will be proper to lay some lime rubbish under the earth, in order to drain off the wet, and the beds should be entirely raised above the level of the ground; but to prevent their falling down into the walks, after frost, or hard rains, it will be proper to raise the paths between them, either with sea coal ashes or rubbish, eight or ten inches, which will support the earth of the beds; and these paths may slope at each end from the middle, which will make a passage for the

water to run off as it falls. But where the soil is dry, the beds may be sunk eighteen or twenty inches below the surface, for in such places the beds need not be more than four or six inches above the surface, which will be allowance enough for their settling.

“ During the winter season there will be no farther care required. The roots, being planted thus deep, will be in no danger of suffering by ordinary frosts, but if the winter should prove very severe, some rotted tan or peas haulm may be laid over the beds to keep out the frost during its continuance, to be removed as soon as the frost is over; and in the spring, when their leaves begin to appear above ground, the earth upon the surface of the beds should be stirred to clear it from weeds, moss, &c. and when the flower buds begin to come up, they should be guarded from frost, otherwise they are very subject to blight and decay soon after they appear, if the frost pinches their tops; but they need only be covered in such nights, when there is a prospect of frost, for at all other times they should have as much open air as possible, without which they will draw up weak, and produce very small flowers.

“ When these breeders are in flower, you should be careful in examining them to observe if any have broken into beautiful stripes, which, if they have, they should be marked, that they may be separated from the breeders, to be planted amongst the striped flowers the following year; but you should carefully observe, whether they have thrown off their former colour entirely, as also when they decay, if they continue beautiful to the last, and not appear smeared over with the original colour, in both which cases they are very subject to go back to their old colour the next year: But if their stripes are distinct and clear to the bottom, and continue so to the last (which is what the florists call dyeing well,) there is no great danger of their returning back again, as hath been by some confidently reported, for if one of these flowers is quite broken, (as it is termed) it will never lose its stripes, though sometimes they will blow much fairer than at others, and the flowers of the off-sets will be often more beautiful than those of the old roots.

“ This alteration in the colour of these flowers may be seen long before they are blown, for all the green
leaves

leaves of the plant will appear of a fainter colour, and seem either striped with white, or of a brownish colour, which is a plain proof that the juices of the whole plant are altered, or, at least, the vessels through which the juice is strained; so that hereby particles of a different figure are capable of passing through them, which, when entered into the petals of the flower, reflect the rays of light in a different manner, which occasions the variety we see in the colours of flowers. This breaking of the colours in flowers proceeds from weakness, or at least is the cause of weakness in plants; for it is observable that after *Tulips* are broken into fine stripes, they never grow so tall as before, nor are the stems, leaves, or flowers, so large, and it is the same in all other variegated plants and flowers whatever, which are also much tenderer than they were before they were striped; so that many sorts of exotic plants, which by accident became variegated in their leaves, are often rendered so tender, as not to be preserved without much care, though indeed the striping of *Tulips* doth never occasion so great weakness in them as to render them very tender. The greatest effect it hath on them, is in lessening their growth, causing some (which, while they continued in their original plain colours, did rise near three feet in height) to advance little more than two after their colours were altered; and the more beautifully their stripes appear, the shorter will be their stems, and the weaker their flowers.

“ There is nothing more to be observed in the culture of striped flowers than what has been directed for breeders, excepting that these should be arched over with tall hoops and rails, that they may be shaded from the sun in the day time, and protected from strong winds, hard rains, and frosty mornings, otherwise the flowers will continue but a short time in beauty; but where these instructions are duly followed, they may be preserved in flower a full month, which is as long as most other flowers continue.

“ There are some persons, who are so extremely fond of these flowers, as to be at a great expence in erecting large frames of iron work to cover their beds of *Tulips*, in such a manner, that they may walk between two beds under

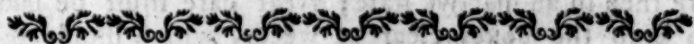
under the frames, over which are spread tarpaulins, so as to keep off sun, rain, and frost, whereby they can view the flowers without being at the trouble of taking off or turning up the tarpaulins, or being incommoded by the sun or rain, which cannot be avoided where the covering is low; besides, by thus raising the covers, the flowers have a greater share of air, so that they are not drawn so weak, as they are when the covering is low and close to them, but these frames, being expensive, can only be used by persons of fortune; however, there may be some of wood contrived at a smaller expence, which, being arched over with hoops, may answer the purpose as well as iron frames, though they do not appear so well, nor are so lasting.

“ But after the flowers are faded, the heads of all the fine sorts should be broken off to prevent their seeding; for if this is not observed, they will not flower near so well the following year, nor will their stripes continue so perfect; and this will also cause their stems to decay sooner than otherwise they would do, so that their roots may be taken up early in *June*; for they should not remain in the ground after their leaves are decayed. In taking the roots out of the ground, you must be very careful not to bruise or cut them, which will endanger their rotting, and if possible, it should be done a day or two after rain. When these roots are taken out of the ground, they must be cleared from their old covers, and all sorts of filth, and spread upon mats in a shady place to dry, after which they should be put up in a dry place, where vermin cannot get to them, observing to keep every sort separated, but they should not be kept too close from the air, nor suffered to lie in heaps together, lest they should grow mouldy, for if any of the roots once take the mould, they commonly rot; when they are planted again.

“ The off-sets of these roots, which are not large enough to produce flowers the succeeding year, should be also put by themselves, keeping each sort distinct; these should be planted about a month earlier in autumn than the blowing roots, in particular beds by themselves in the flower nursery, where they may not be exposed to public view; but the earth of the beds should be prepared for them in the same manner as for larger roots, though

though these should not be planted above five inches deep, because they are not strong enough to push through so great a covering of earth as the old roots; they may be placed much nearer together than those which are to flower, which most of them will become strong enough to do in one year, when they may be removed into the flower-garden, and placed in the beds amongst those of the same kinds."

That this treatise may be no way deficient in an Article so much esteemed by Florists, we shall add the practice of another excellent gardener.



Directions for raising Tulips from Seed, as practised by Francis Beulinz, Florist, near the Chartreux, at Brussels in Flanders.

WHEN the stems of these flowers appear to rise above their leaves, and to be preparing for bloom, they should be tied to long iron wires or small reeds, that they may be preserved from breaking by wind. The stems, as they advance in height, should have all opportunities of sun to ripen the seeds; which, as soon as they offer fair, encourage them by all means.

The seeds will be ripe by the end of *June*; which you will perceive by the seed-vessels opening, and shewing the seeds; when they must be cut off and laid in a dry place, to be kept until the middle of *September*; and to be sown in the following manner, and in the compost as here directed.

To one load of virgin-mould, take a quarter of a load of very white sea-sand, neither red nor yellow, nor of the finest sort, but of a coarse substance; or in its place some coarse free river sand: To this add, of very old and well rotted cow-dung, one half load; and the other quarter must be of a short, mossy, black earth. Mix and incorporate these, one year at least, before sowing: Boxes are then to be made three feet long, two broad, and one foot deep; boring many holes in their bottoms, to be covered with concave oyster-shells, for the readier passing off of the superabundant water; and to the sides of the seedling boxes, which cannot be easily lifted, put two staples for poles, like to those that are in the sides of sedan-chairs; that they may be carried from one place to another,

ther, without disturbing the earth. The seed is to be sown about the 26th of *September*, giving the boxes the advantage of the most sunny situation, and to cover their surface with three inches of tan in severe frost; folding wooden covers are used for these boxes, to protect the seedlings from heavy showers, violent and sharp winds, which in *March* is to be removed with the hand, when the boxes are to be moved into a more shaded situation for the spring and summer, watering them when their leaves appear, as occasion shall require; but when they are faded, be moderate in your watering, as their roots are then in an inactive state; great care must be taken to keep the boxes clear of weeds, which should they come to any height, would take with them the seeds in removing; you are to observe that the leaves of the young *Tulips* at their first coming up appears like grass.

Here your seedlings may continue for two or three years, observing to give them fresh mould every *August*, that which has been already prescribed, which will very much strengthen their roots; at this time, it will be necessary to move these plants into a situation, where they will have the sun until eleven o'clock only.

When you lift them, let their leaves be down and the earth very dry; which you must riddle that none of the roots may be lost, they are to be laid in the root-room, until the beginning of *October*; when they are to be replanted into larger boxes, and the same sort of earth in which they were sown, managing them as you did the former year: They are to remain in the boxes for two years longer, as they are then to be planted into beds; and the most proper soil for them, is that wherein hyacinths have been planted the preceding spring. If any of them flower this fifth year, they must have covers, and be lifted every year when their leaves are down, as you do with your old standards; and before you condemn a flower for its bad appearance, you must indulge it with two years trial, for the root will not have strength to expand its petals, and display its colours sooner.

As their roots become large, you must add to the sand of the compost; and when they have all advanced to the state of flowering, use that compost which I have prescribed for the old blowers, whose culture has been already laid down.

A List

A List of the *Bisard Tulips*, which for beauty of colour and high stems are greatly esteemed.

Abondante	Keyser Carel-beste
Aigle Noir	La Poudree
Aglauros	Keyser van Java
Hippolyte	La belle Brune
* L'Astre du Jour	La belle Colombine
Arienne	La Bulgare
Belle Minerve	La Solitaire Brune
Aiglon	* L'Excellente Brune
Bellinde	* La Cadiere
Bellissarius	* La Sublime
* Blande d'Oret noir	Lucia
Frangé	Lucifer
Blyrothea	Elegantissimo
Bocaall	Excellentissimo
Brunette Grisdeline	General Bathiani
Brunon	Eumetis extra
Roi de Sweden	Fabule
Chimene	Negrin
Chamelion	Nimroth
Charmante	* Nitocris
Cuveliere	Nubiaan
Directus	Oziris
Clorilde	Perminie
Du Thoy	Querdidie
Efialtes	* Ravissante
Fountainbleau	Regulus
Ganymedes	Roy de Siam
Generalissimus	Russienne
* Gloriane	Sagesse
Glorieuse	Romulus
Gouden Wapen	Sautrelle
Henriette	Semiramis
Hianisbe	Seneschall
Hogenbot	Schonendonk
Icodrode	L'Invincible
Iphigenie	Magnifique
Jemima	Monterat
* Juarlie	Migreliene

Mnemosina

Mnemofina

Jeuweell Royale

* Chapeau-transparent

* Lion

Siveline

Sephora

Soleil d'Or

Soleil Royale

Spadille

* Staaten General extra
Schoone

Tacimine

St. Andre Frange

F. Reuweel

Voorst van Hanover

Titienne

Victorieux

Sappho.



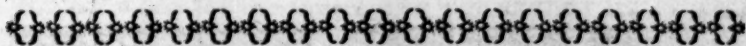
*The Management of the Double Tulip, with some Directions
for breaking of Breeders into beautiful Tulips.*

THE double *Tulips* I planted in my *Hyacinth* ground, which I stirred up from the time I lifted my *Hyacinths*, adding a fourth of fine white sand, prepared for the purpose, and as soon as they appeared, I treated them in the same manner I did my other *Tulips*.

In ten days after their bloom was over, I carefully nipped off their seed vessels; and when their stalks were entirely withered, I lifted them; this I did with a small blunt iron instrument, that I should not wound their roots, laying them in the root-room, and as soon as they were dry, cleansed them from old skins, old earth, and rotted fibres, which were not so proper to be taken from them when just lifted; observing not to take off any off-sets from them, but such as came from them freely, and were fully formed. This I observed as a general rule in regard to the off-sets of all my bulbous rooted flowers. In the root-room they were preserved by the free admission of air, and not by any other expedient, which I have ever found to succeed best.

In respect to *Breeders*, I must not omit a practice I observed in *Holland*, to force them to break their colours, for which purpose a Gentleman of my acquaintance prepared a very lean, sandy, and gravelly soil, wherein he planted them eight inches below the surface, from which he had forty *Baguets*, extremely well broken, most of which retained their stripes to their fading, and had entirely thrown off their original colours. The autumn

tumn following, he planted them in his richest garden mould, where most of them retained their fine colours, and were vastly beautiful. The occasion of his changing the soil the second year, was, that where they were first planted, the size of their roots were so diminished, that he was apprehensive their flowers would be likewise small, therefore he planted them in the rich soil to enlarge their roots. This experiment succeeded very well; for the roots recovered their former size, and most of them retained their beautiful stripes into which they had been broken.



Directions for the Culture of the Anemone.

TO the Tulip succeeds the *Anemone*, or *Wind-flower*. This flower is one of the beauties of the spring, which I would advise to be got from *France* or *Holland*, as they have greater varieties of them, than are with us, whose colours are confined to reds and whites; whereas I have seen there great varieties of blues, purples, and brownish colours, most admirably intermixed, and of most other colours, excepting yellow. It is called *Wind-flower*, from its seeds being contained in down, which are easily carried away by the wind.

They are distinguished into the narrow and broad-leaved kinds: I renewed their beds every year with the compost I used for *Hyacinths*, to which I added a fourth part more of a fresh yellow marlish earth. For a full blow, I planted them the end of *January*, in beds two feet deep of compost, ten inches root from root, and two inches deep. To plant them sooner, I found was exposing them too much to winter frosts, which had destroyed many of mine: Should the winters prove mild, you will have a greater increase of roots by planting them early; but this I found too hazardous, so that I did not plant them earlier than *December* or *January*. In planting, I always observed to put their roses (as their flower-buds are termed) uppermost, and in *March* and *April*, in dry weather, I often refreshed them in the evening, or early in the morning with water, and this I found to be the only proper time of doing it.

As

As soon as their leaves were faded, I lifted them, and spread them on a cloth in the root-room, to dry; and after they had lain there twenty days, I cleaned them, and laid them in their proper drawers, first taking off their longest off-sets, which is a more favourable time than when you are going to plant, as the amputated part has time to heal and dry, otherwise there would be a mouldiness from the gummy substance of this root.

Of these flowers, there is a great and beautiful variety, which makes them deserving of a place in every good collection of flowers.



Directions for raising the Ranunculus.

THE *Ranunculus*, or the *Crow-foot*, deserves our next attention, and these are divided into two sorts: The *Turky Ranunculus*, and the *Persian*, of which there are many beauties obtained every year from seed. I shall first treat of the *Turky Ranunculus*; and of those in *Voerbelms* catalogue there are fourteen sorts, viz.

Admiral van Constantino- ple	* Tribellius Trache
Exquisita Romana	Turban d'Or
Merveilleuse Luteo	Turke Turban
Merveilleuse de Paris	The Seraphics, or Whites and Reds
Monstroom Trache	Minerva, Reds or Carmine Colours
Ossen-bloed	Mufti, or La Pucelle de France, Whites
* Passe Ossen-bloed	And the yellow Merveilleuse mixed with fine red co- lours.
Pivan Major	
Romanum	
Romanum Trache	
Sphericus	

The *Passe Ossen-bloed* blows two ranges, sometimes three of flowers, upon which account it is the most esteemed.

The proper time of planting them is in the beginning of *December*; their appearance will be a little before the beginning of *March*, when our severest frosts are gone. Plant them in a bed of what length you please, but in breadth five feet, and in depth three, and of the same mould

mould wherein your plant your *Hyacinths*, adding a sixth part of cow dung; in this compost you are to plant them two inches and one half deep, and four inches distance root from root: Thus must they remain until their leaf-buds begin to appear, when you are to riddle over them one inch more of stiff mould; to prevent their being exposed too much to the dry weather, and to the heat of the sun, both of which are very prejudicial to this plant when in flower, which they will be, by the beginning or the middle of *May*. In the evening I gave them frequent waterings, or very early in the morning, but not when the sun shined. As soon as their leaves were quite decayed, I took the roots out of the ground, spread them upon a cloth, and dried them; When they were dry, I cleared them from the earth, and took from them such off-sets as came off freely.

In *January* or *February*, (should the frost set in severe) whilst their roots are springing, and sending their fibres into the ground, I covered the sides of their beds with two or three inches of rotten tan-bark, but never suffered it to mix with their compost, it being extremely prejudicial to them; I also covered the beds with long straw, except when their leaves appeared above ground; when I laid on an inch more of earth, but no straw, as that would rot their young leaves, and perhaps their roots also.

The *Persian* kinds of *Ranunculus*, cannot be equalled by any flower in beauty, diversity of colours, and forms of their vastly magnificent flowers; for which reason I shall be the more particular in their culture, and of the management of their seedlings.

I would advise to have the roots of the double flowers from the mynheers *Voerbelms*, or *Vocrbelm* and *Van Zompel* at *Haerlem*, and the semidouble from some florists in *Flanders*; as the *Voerbelms* seldom part with their best semidouble flowers; as it is from these they have the best seed. I planted the finest double sorts about the beginning of *February*, in light rich earth, as directed for the *Turky* sorts; observing to give them every year fresh compost. If you plant them in pots, put one root, or two at most, into a two-penny pot; and so soon as you have planted them, sink the pots into the ground, two

A a inches

inches below the surface, in the forms of beds, four in breadth, and as many as you please in length. Upon the approach of frost, I covered them with two inches of old tan; which I suffered to continue for the advantage of watering them, without disturbing their fine compost.

It will be proper to cover these flowers when they are in blow, from the influence of the sun, otherwise they will be hurried out of their beauty: As soon as the leaves are dry, I took them out of their pots, and the open ground, and laid them in the root-room in their particular drawers, until the season for planting, taking care to protect them from the frost. Notwithstanding what I have directed with respect to planting the *Ranunculus* in pots, you may plant them in beds of the same compost as those in the pots; and if they are not injured by vermin, they will blossom and prosper well; the beds are to have two feet depth of compost; as their small fibres run deep into the earth, provided it is well prepared, and will give more flowers and off-sets than when shallower.

There is another method of preparing beds for this flower, which I have seen practised with great success: A trench is first dug two feet deep, in which put fourteen inches of old well-rotted dung from an old cucumber, or melon bed; over which lay ten inches of good, fresh, light earth, in which plant your *Ranunculus* roots; and when their fibres reach the old rotted dung, they are kept moist and active, whereby they show a strong bloom; but be sure to give them new compost and dung every year, otherwise they will decline. If you have any very well-rotted cow dung, I would prefer it to horse dung, from any hot-bed whatever.

As to the seedlings, not any can be expected to succeed well, but such as are obtained from well coloured semidouble flowers. And in order to preserve the seed, you must as soon as you perceive the seed part from the axis of their flowers, look them over carefully twice a day, and gather what are ripe, leaving the others to ripen, which will be three weeks at least from the time your earliest seeds are ripe; then lay them in their seed-paper bags until *October*, which season I take to be the most proper for sowing them; for should they be sown earlier,

earlier, they will spring up before the frost comes on, which will endanger them, either by throwing their young roots out of the ground, or by cutting off their leaves.

I then prepared boxes for them, much in the same manner as I did for the seedling *Hyacinths*, but somewhat shallower; the seed is to be sown thin, and to be protected as much as possible from the frost, which the cover of the boxes much assist in.

The young plants, by this management, will begin to appear by the first of *March*, when the severity of the frosts is over, when the boxes are to be removed into a situation where they may enjoy the benefit of the sun, until eleven o'clock only. I prefer boxes for these as well as most other flower-seeds, as the wood is warmer than any earthen ware; I always took care to lay some very fine riddled rotten tan over the ground, before the frost set in, which also kept down the light earth in watering, so that it was preserved about their roots. In *June* they are to be lifted out of the boxes, to be replanted about the middle of *November*, giving them new earth and larger boxes, to be covered as before with rotted tan. The boxes for this purpose were one foot and an half deep, and in length according to your number of roots, to be planted at two inches distance, root from root, and near two inches deep, in the same sort of compost before used. I planted them in boxes for this second year, rather than in beds, the better to protect them from the severities of the weather; they appeared in *March*, and some of them flowered: Those which were single and of an ordinary colour, I pulled up when they were in bloom; the good ones I allowed to remain in the ground until the lifting season; such as flowered in the second year, were only semidoubles, excepting two dozen of fine doubles, of which I took particular care, and planted them among the finest doubles, being extraordinary fine flowers, and so much esteemed as to be placed in the *Dutch* catalogues.

About the middle of *December*, or the beginning of *January*, the seedlings which I laid in the root-room, I planted into a long bed two inches deep, in the compost, which was laid two feet deep, and four broad, which I

covered with two or three inches of tan, as soon as I perceived the frost to set in; in *March* I removed it, and as soon as I perceived their leaves coming above ground, I riddled an inch of the strongest garden mould on them, without any mixture of sand: The use of which was to strengthen the young roots, and also to preserve the earth from being washed off their bulbs in watering. I also covered them with mats when in bloom, supported by hoops, taking care to pull up all bad flowers, when they shewed themselves. By this management, I had most extraordinary success, observing to procure some fresh roots of the best semidoubles every year from abroad, and at home, for it is necessary to change the seed to obtain good flowers.

The following list is a collection of the best *Persian* kinds, distinguished by their colours; and those marked with an *Asterisk* * are particularly beautiful.

Ranunculuses, Purple and Rose-coloured.

* Ambustus	Milo
Jeuweel van Europa	My Lord Walgraaf
Administrateur	Nonius
Archeveque du Canterbury	Purpre sans pareille
Bashaw van Cairo	Purpre Manteel
* Belle Africa	* Phoenix florum
* Ballotin	* Purpre incomparable
Bosphorus	Premiere noble
Cardinal's Hood	Provincie Rose
Dromedaris	* Rose Charmante
Electryon	Rose d'Amour
Etiopiaan	Roy de Fleurs
Grand Conquerant	* Sapphire
Gekroonde Moor	Stadhouder General
Grand Maitre Royale	Gloria Ranunculum
* Grande Monarque	* Vesuvius
* Grisdeline Roots	Violete Grisdeline
* Jeuweel Grisdeline	Viperino
Incomparable nova	* Violete incomparable
Katarinete	* Violete illustre
Keyser Amurath	Violete sans pareille
Koning David	Cour de Toscane, Violete
L'Ambe du jour	superbe presque bleuf.
Metellus	<i>Ranun-</i>

Ranunculuses of Orange Colours.

Admirante	Orange Boom
* Belle rouge Orange	Perdiccas
* Comte de Lowendahl	* Phoenix triumpante
Colombus	Feu imperiale
Aristander	Feu Royale
* Fayal	* Feu triumpante
Feu Constante	Four Ardent
Feu Dominante	Furieufe de France
* Grand Feu du Roy	Procurator
Koningin van Sicilien	Thitone
L'amp d'Or	* Topana
Metropolitaan	Avernus
* Orange Voorft	* Demophoon.

Ranunculuses of white mixed with red Colours.

Belle aimable	* Picoté aimable
* Belle Catarina	Queen of Hungary
* Belle rouge Grisdeline	Raine blanche
Bonte Leuw	Rose Imperiale
Brisetoute	Agaet Incomparable
* Charmante Grisdeline	Diademe
Capitain General	Pironetta
* Gravin van Yarmouth	* Eucharis
Dallila	Sneeuberg
Trois Couleurs Eclatantes	Koningin Elizabeth.
Triple Croon	

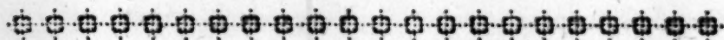
Ranunculuses of yellow and red Colours.

Belle Asia	* Goudenberg
Berg Etna	Rhadamanthus
* Swarte Leuw	Soleil Levant
Gouden Sceptre	Vergulde Lampet
Guldezoon	Vergulde Servies
Gouden Ketten	Reine de Morocco
Jeuweel van Dort	Laomedon
* Isabelle triumpante	* Marquise dell Campo
Jonquille aimable	Florido.

Ranunculuses of feuillemort Colours.

La Vauve Galante	Feuillemort noir
Achæus	* Glorieuse feuillemort
Agariste	brune
Bruin feuillemort Fluweel	La Financier
Brunon	Mortthead
* Feuillemort Charmante	La bella Veuve
* Le Monde travestie	* Victorieuse
* Cantor	Vleermuys
* Chimney-sweeper	Feuillemort sanspareille
Mouron	La Sepulchre de Louis
Rakima	Quatstorse
* Seimra Bruin	Demon.
* Sultan Osman Bruin	

I shall now proceed to the Directions for the other great ornaments of our gardens, viz. The *Annuals*, *Perennials*, and *Biennials*; and as those of the greatest curiosity and value, are originally from *Holland*; I shall begin with a list of them, as given by the best florists there; then will follow the same, under the names assigned them by the best botanists; to which are added the names they are best known to, by the *English* gardeners; with these are given their culture, and to the whole is added for the first time, an alphabetical list of their names in *English*, which it is expected will be very acceptable, as it has a reference to the two preceding lists by figures, corresponding to those in the other lists; so that the *Dutch*, and botanical names, may with ease be referred to, as well as the culture of every plant. The *Dutch* names will be of use to such gentlemen, as are inclined to import, and prevent mistakes in this way, which but too frequently happen.



The Dutch Catalogue of the most curious Annuals and Exotic Plants, that have been raised in that Country; necessary for those who would import any of them from thence. The Figures preceding the Articles have Reference

The GARDENER'S NEW DIRECTOR. 347
ence to the English Catalogue, as well as that of their
Culture.

N. B. The articles marked with an *Asterisk* are such
as are most esteemed for their superior excellence.

CATALOGUES van *schoone BLOMZAADEN te vinden*
by Dirk and Pierre Voerhelm, *Blomist te Haerlem*, 1754.

Het Honderd Soorten tot 5 Gulden.

Bloem-Zaaden, die het eerste Jaar bloeisen.

- | | |
|---|---|
| 1 Abutilon grossularia
folio flore rubro | 24 Aster Chinenſis magno
flore albo |
| 2 Acetosa vesicaria | 25 do. cæruleo |
| 3 Ageratium folio ser-
rato | 26 do. purpureo |
| 4 Agremona Mexicana | 27 do. minor albo |
| 5 Alcea flore vesicario | 28 do. Conizoides |
| Africana | 29 do. Jacobea folio |
| *6 do. Perennis flore alb. | *30 Atriplex buxifera |
| *7 do. Purpureo | *31 do. odorato |
| 8 Amaranthus maxima
erecta | *32 Balsamina foemina flore
albo |
| 9 do. sparsa | 33 do. incarnato |
| 10 do. spica virid. | 34 do. variegato |
| 11 Annagallis flore alb. | 35 do. purpureo |
| 12 do. Phæniceo | 36 do. albo pleno |
| 13 do. cæruleo | 37 do. incarnato pleno |
| 14 Anthirrinum arvenſe
flore albo | 38 do. incarnato variegato
pleno |
| 15 do. rubro | 39 do. purpureo pleno |
| *16 do. majus perenne flo-
re albo | 40 do. purpureo variegato
pleno |
| *17 do. rubro | 41 do. Roseo pleno |
| *18 do. variegato | 42 do. tricolore pleno |
| 19 Agremona spinosa. | 43 do. luteo, seu noli me
tangere |
| 20 Alarini Lobelli | 44 Bellis American. Coro-
nopi flore luteo |
| 21 Astragalus maritim. | 45 do. Cabo de Bon espe-
rance |
| 22 do. Stellatus | |
| 23 Asphodelus luteus | |

A a 4

46 do.

348 The GARDENER'S NEW DIRECTOR.

- | | |
|---|--|
| 46 do. Majus | 75 do. rubro variegato |
| 47 Bidens Canadensis latifol. flore luteo | 76 Chrysanthemum flore albo pleno |
| *48 Blataria flore albo | *77 do. luteo pleno |
| *49 do. luteo | *78 do. fistulosa |
| 50 Borago Cretica flore variegato | *79 do. sulphurin. pleno |
| 51 do. major folio variegato | 80 Chamæpitys |
| *52 do. major flore cæruleo | 81 Cicer album |
| 53 Buglossum majus flore albo | 82 do. rubrum |
| *54 Bupthalm. Papav. fol. flore luteo | 83 Clymenum Hispanicum |
| *55 do. Tanaceti folio flore luteo | 84 Coluthea Arbor, vesic. Barba Jovis fol. flore rubro |
| *56 do. albo | 85 Condrilla Cretica flore roseo |
| 57 Beuplurum perfoliat. | 86 do. flore luteo |
| 58 Caliminta Montan. | 87 do. Orientalis flore rubro |
| 59 Calendula flore sulphurino | 88 do. Tingitana flore luteo |
| 60 Caltha vulgaris flore pallido | *89 Conisa Argenteo |
| 61 do. Polyanthos maxima | *90 do. Aureo |
| *62 do. Prolifera | *91 Consolida Anglica flore albo |
| 63 Capno des Fumaria | *92 do. cæruleo |
| 64 Carduus Italicus spinosus Horrible | *93 do. variegato |
| 65 do. Mariæ | 94 do. incarnato |
| 66 do. minor flore lut. | *95 do. incarnato variegato |
| 67 Caryophyllus Chinenfis flore pleno | 96 do. pallido |
| 68 Caryophyllata flore luteo | 97 do. Reg. flore albo |
| *69 do. variegato | 98 do. pallido |
| 70 Cartamus flore croc. | 99 do. cæruleo |
| 71 Cauca. Monspeliac. | *100 do. pallido varieg. |
| 72 Cerinthe flore albo | 101 do. argenteo |
| 73 do. luteo | 102 do. cæruleo variegato |
| 74 do. purpureo variegato | 103 do. cinereo |
| | 104 do. incarnato |
| | *105 do. interdum pleno cæruleo |

106 do.

- | | |
|--|--|
| 106 do. incarnat. | 135 do. pleno |
| 107 Convolvulus auricu-
latus baconi | 136 do. Principis flore
albo |
| 108 do. major flore pal-
lido | 137 do. cæruleo |
| 109 do. roseo | 138 do. pallido |
| 110 do. purpureo | *139 do. Solis luteo |
| 111 Cotula flora albo | *140 do. pleno |
| 112 do. luteo | 141 do. semine albo |
| 113 Concurbita fructi po-
mi forma | 142 do. pleno |
| *114 Cucumis Aspinus | *143 do. flore sulphureo |
| *115 Cyanus arvensis di-
versi color | *144 do. pleno |
| 116 do. flore albo | *146 Galega flore albo |
| 117 do. cæruleo | 147 do. cæruleo |
| 118 do. purpureo | *148 Garidella foliis tuni-
cissime divisis |
| 119 do. orientalis flore
albo odorato | 149 Geranium latifolium |
| *120 do. luteo odorato | 150 do. Muscatum |
| 121 do. Purpurea odo-
rato | 151 do. semine nigro |
| do. segetum flore
purpureo | 152 Glaucium flore luteo |
| 122 Ervum verum | 153 do. flore rubro |
| 123 Ervum equinum mi-
nus | 154 do. cæruleo. |
| 124 do. majus | 155 Gramen Alopecu-
des majus |
| 125 Fœnum Græcum fa-
tivum | *156 do. Tremulum majus |
| 126 Flos Adonis flore ru-
bro | *157 do. minus |
| 127 do. Africanus aureo
pleno | *159 Hallicaccin. fructu
aureo |
| *128 do. fistulosa pleno | 160 Hedisarum annuum |
| *129 do. luteo pleno | 161 do. Clypeatum flore
albo |
| 130 do. Indicus minor | *162 do. rubro |
| 131 do. Tunetanus vul-
garis | 163 Hedipnoides flore
triplo |
| *132 do. flore atro rubente | 164 Hiera. Barbarum flo-
re albo |
| 133 do. luteo | *165 do. luteo medio ni-
gro |
| *134 do. variegato | 166 do. Montanum pe-
renne flore luteo |
| | 167 Hesperus Montan.
altifolius |
| | 168 Hypecoun |

350 The GARDENER'S NEW DIRECTOR.

- | | |
|---|--|
| 169 Hipericum flore luteo | 193 do. cærul. et luteo |
| 170 Horminum coma rubra | 194 do. luteo parva |
| *171 Hysophus flore rubro | 195 do. perennis flore purpureo |
| 172 Lathyrus Angusti folio flore rubro | 196 Linum Africanum |
| 173 do. albo et rubro variegato | 197 do. altissimum |
| 174 do. flore luteo | 198 do. Umbilicatum flore albo |
| 175 do. Odorato flore albo et rubro variegato | 199 Lyfimachi Virginina |
| *176 do. purp. et rubro variegato | *200 Lotus flore atro rubente folio variegato |
| 177 do. Supinuus minus | 201 do. luteo |
| 178 do. Tingitanus | 202 Lucojum annuum flore rubro |
| 179 do. Vicia subterr. | 203 do. flavo |
| *180 Lavandula folio dissecto | 204 do. arborescens flore albo |
| *181 Leucanthem. Tannaceti folio flore majore | 205 do. purpureo |
| 182 Lychnis perfoliata flore rubro | 206 do. roseo |
| 183 do. Hirsuta minor flore variegato | 207 do. rubro |
| 184 do. Missipole flore albo | 208 do. variegato |
| 185 do. carneo | *209 do. folio glabro flore albo |
| 186 do. purpureo | 210 do. flore lutea mixto |
| *187 do. Scabiosa | *212 do. perenne flore lutea |
| 188 do. Segetum | 214 do. vernum flore purpureo |
| 189 do. Orientalis flore rubro | 215 do. rubro |
| 190 do. Saponaria flore pleno | *216 Lupinus flore albo |
| *191 Linaria Augusti folio flore albo | *217 do. luteo odorato |
| *192 do. flore albo et luteo | *218 do. Indicus flore cæruleo |
| | *219 do. major incarnato variegato |
| | 220 Lupinus minor semine pallido flore cæruleo |
| | *221 Lupinus majore cæruleo variegato |
| | 222 do. |

- | | |
|--|--|
| 222 do. minor cæruleo
variegato | 253 do. cæruleo |
| 223 Marjorana Cretica
odorato | *254 do. Orientalis flore
violaceo |
| *224 Malva Bætica flore
albo | *255 Nardus Bohemica
flore albo |
| *225 do. Roseo | 256 do. cæruleo |
| *226 do. incarnato | *257 do. Orientalis flore
variegato |
| *227 do. rubro | *258 Nasturtium Indi-
cum majus, flore
aureo |
| 228 do. Orientalis ru-
bro | 259 do. luteo |
| 229 do. flore albo | *260 do. minus flore aureo |
| *230 do. folio crispo | 261 do. flavo |
| *231 do. variegato | 262 Necanthemum flore
purpureo |
| 232 Matricaria folio cris-
po | 263 Nicotiana latifolia |
| *233 do. flore pleno | 264 do. rotundo folio |
| 234 Medica Cochialata
major | *265 Nigella flore albo
pleno |
| 235 do. minor | *266 do. cæruleo pleno |
| 236 do. hirsuta | 267 Ochrus semine pullo |
| *237 do. maculata sapi-
nosa | 268 Ornithopodium mi-
nus |
| 238 do. Turbinata | *269 Papaver flore albo
pleno |
| 239 do. Orbiculata | 270 do. incarnato pleno |
| 240 do. Semine glabro | 271 do. purpureo pleno |
| 241 do. plano | *272 do. incarnato strato
pleno |
| 242 Melilotus Italicus | 273 do. roseo straito pleno |
| 243 do. flore violaceo | 274 do. rubro straito pleno |
| 244 do. minor | 275 do. totum rubrum |
| 245 Meagrum Monof-
parum | 276 do. albo major inter-
terdum pleno |
| 246 Milium Gambocci-
um | 277 do. incarnato straito
pleno minor |
| 247 do. Solis | 278 do. Erraticum flore
albo |
| 248 Mirabilis Peruvia-
nus flore albo et
rubro | *279 do. diversi-color flore
pleno |
| 249 do. luteo et rubro | *280 do. Phæniceo |
| 250 do. toto rubro | |
| 251 do. luteo | |
| 252 Moldavica flore albo | 281 do. |

352 The GARDENER'S NEW DIRECTOR.

- | | |
|---|-------------------------------|
| *281 do. atra rubente fim- | 307 do. filiqua crassa |
| bria | 308 Scholymus spinosus |
| *282 do. Phæniceo fim- | flore luteo |
| briato | *309 do. flore variegato |
| 283 do. pallido | 310 Sefamoides parvus |
| 284 do. roseo | Matthioli |
| 285 Pelecinus Vulgaris | 311 Specul. Venereum |
| 286 Persicaria Orientalis | flore albo |
| 287 Phaseolus Indicus | 312 do. purpureo |
| coccineo | 313 Stachys agria platani |
| 288 do. nigro | folio |
| 289 do. minor fructu luteo | 314 Thlaspidium flore |
| | pallido luteo |
| 290 do. pallido | 315 Thlaspi Creticum |
| 291 Pomum Amoris | flore albo |
| fructu luteo major | 316 do. purpureo |
| 292 do. minor | 317 do. violaceo |
| 293 do. rubro major | *318 do. Monspeliaco |
| 294 do. minor | 319 do. luteo minor |
| *295 Ptarmica flore albo | *320 do. saxatile flore luteo |
| pleno | *321 do. Virginiana albo |
| *296 do. purpureo pleno | odorato |
| 297 Reseda flore albo | 322 Tordilium Narbonense |
| <i>There is now another of the Reseda, viz.</i> | 323 do. Syriacum |
| 298 Reseda Egyptiaca, | 324 Trifolium Lagopi |
| Floribus ex luteo | folio |
| viridibus odoratissimis | 325 do. flore albo |
| 298 Ricinus Americanus | 326 Triticum Americanum |
| 299 Scabiosa Annus maxima | 327 Valeriana æstiva |
| 301 do. flore albido | 328 do. Indica flore albo |
| 302 do. prolifero | 329 do. rubro |
| 303 do. purpureo | 330 Valerianella Cretica |
| do. variegato | fructu vesicaris |
| 304 Schandix major | 331 do. Umbellata |
| 305 Scorpioides Corniculis asperis | 332 Verbascum nigrum |
| 306 do. non asperis | flore albo |
| | 333 do. flore luteo |
| | 334 Vicia Orientalis |
| | 335 do. |

- | | |
|--|------------------------------------|
| 335 do. glabro amplo
candido | *339 Viola hortensis tri-
color |
| 336 do. sativa | 340 Vulneraria Penta-
phyllus |
| 337 do. semine nigro | 341 Urtica Romana. |
| 338 do. Silvestris fruc-
tu rotundo | |

*Bloem-Zaaden, die't tweede Jaar bloeijen, or seeds of bi-
ennial flowers which blossom the second year after
sowing.*

- | | |
|--|--|
| 342 Acarna Theophrasti
et Plinii | 362 Horminum Corni-
cerv. folio |
| 343 Astragalus Alpinus
procërior alopecu-
roides | 363 Laburnum |
| *344 Aquilegia variegata | *364 Lathyrus perennis
major |
| *345 do. Virginiana | *365 do. minor |
| 346 Bardana Arachoides | 366 Leucorum Cerinthi
folio |
| 347 Bellevedere | 367 Lychnis Coronaria
rubro |
| 348 Bulbonac flore albo | *368 do. variegato |
| *349 Bulbonac flore cæ-
ruleo | *369 Malva hortensis ro-
sea flore albo pleno |
| 350 Capsicum arboref-
cens fructu rubro | *370 do. atro rubente ple-
no |
| *351 Caryophyllis Barba-
tus flore variegato | *371 do. incarnato pleno |
| 352 Clenopodium Cana-
dense | *372 do. luteo pleno |
| *353 Carolina magno flore | *373 do. variegato pleno |
| 354 Coluthea arboref-
cens vesicaria flore
luteo | *374 do. nigro pleno |
| *355 Digitalis flore albo | *375 do. purpureo pleno |
| *356 do. roseo | *376 do. roseo pleno |
| *357 do. rubro | *377 do. rubro pleno |
| *358 do. purpureo | *378 Malva Mexicana
Mexicana, |
| *359 do. Virginiana | *379 Moldavica America-
na perennis |
| 360 Geranium majus cæ-
ruleo | *380 Papaver Indium pe-
renne |
| 361 do. variegato | *381 Plantago roseo |
| | 382 Scabiosa perennis |
| | 383 Son- |

354 **The GARDENER'S NEW DIRECTOR.**

- | | |
|-------------------------|--------------------------|
| 383 Sontalina incana o- | *387 do. minima flore |
| dorata | cæruleo |
| 384 Tyntimalis Catapu- | 388 Vicia Bengalensis |
| tia | *389 Viola Mariana flore |
| *385 Valeriana Græca | albo |
| flore albo | *390 do. cæruleo |
| *386 do. cæruleo | 391 Vulneraria |

Bloem Zaaden, or seeds of flowers which must be sown upon hot-beds.

- | | |
|--------------------------|---------------------------|
| 392 Abutilum Indicum | 406 do. rubro |
| flore aurantio | 407 Datura flore purpu- |
| 393 Amaranthus trico- | reo odorato |
| lor luteo rubro et | 408 Ficoides ChrySTALLINA |
| viridi | 409 Lacrymæ Jobi |
| 394 do. rubro et viridi | 410 Malum insanum |
| 395 do. Globosus flore | fructu luteo |
| albo | 411 do. purpureo |
| 396 do. purpureo | 412 Ocimum Nobile |
| 397 do. Christatus flore | 413 Piper Indicum ob- |
| albo | longo fructu luteo |
| 398 do. luteo | 414 do. rubro |
| 399 do. rubro | 415 do. major fructu lu- |
| 401 do. Conglomerato | teo |
| 402 do. totum rubrum | 416 do. rubro |
| 403 Alcea Americana flo- | 417 do. minor fructu lu- |
| re aurantio | teo |
| 404 Bidens Indicus flore | 418 do. rubro |
| aurantio | 419 do. fructu Cerasi |
| 405 Canna Indica flore | 420 do. minore |
| luteo | 421 do. Punctata. |

An Explanation of the Authors Names, and Abbreviations made Use of in the following Dutch Catalogue, of Flowers, Botanically explained.

Tournef. Institutions of Botany, by Joseph Pitton Tournefort, printed at Paris 1716, Quarto.

C. B. Asper Baubinus his Prodromus to his Theatre Plants, printed at Basil 1671, Quarto.

C. B. P.

C. B. P. Caspar Baubinus his *Pinax* to his Theatre of Plants, printed at *Basil* 1671, *Quarto*.

H. Cliff. Hortus Cliffortianus, or a Catalogue of the Garden of Plants at *Hartechamp*, belonging to Mr. *George Clifford* of *Amsterdam*, ranged according to the new method of the Sexes of Plants, by Dr. *Charles Linnaeus*, Professor of Botany at *Upsal* in *Sweden*, printed at *Amsterdam* in *Folio*, 1736, with elegant Figures.

Boerb. Ind. An Index of the Plants growing in the Physic Garden at *Leyden*, by Dr. *Herman Boerhaave*, printed at *Leyden*, 1719, in *Quarto*.

Lugd. A general History of Plants, by *Dalechamp*, printed at *Lyons* 1586, two Vols. in *Folio*.

J. B. An universal History of Plants, by *John Baubinus*, in three Vols. *Folio*, printed at *Embrun*, 1650.

Inst. R. H. Ray's History of Plants, *London* printed 1704, in three Vols. *Folio*.

Hort. Lugd. Bat. Hortus Lugduni-Bataavorum, or a Catalogue of rare Plants, which are growing in the Physic Garden at *Leyden*, printed in *Octavo* at *Leyden*, 1695.

Tournef. Coroll. A Corollary to the institutions of Botany, by *Joseph Pitton Tournefort*, printed at *Paris* 1703, *Quarto*.

Boerb. Ind. alt. The second part of *Boerhaave's* Index of the Plants growing in the Physic Garden at *Leyden*.

H. C. The *Hortus Catholicus*, i. e. the Universal Garden, by *Franciscus Cupani*, printed at *Naples* 1696, *Quarto*.

Mor. Hist. An universal History of Plants, by *Robert Morison*, printed at *Oxford* 1699, in three Vols. *Folio*.

Tabern. Icons of Plants, by *Tabernæ-montanus*, printed at *Francfort* 1590, *Folio*.

Martin. Hist. *John Martin* Professor of Botany in *Cambridge*, his *Decades* of rare Plants.

Germ. Emac. Gerard's History of Plants, improved by *Thomas Johnston*, printed at *London* 1633, *Folio*.

H. Eyst. *Hortus Eystentensis*, by *Basilius Besler*, printed at *Norimberg* 1618, *Folio*.

Hort. Catbar. The *Hortus Catharticus*, printed at *Amsterdam*, 1695.

Morison.

Morison. Hiftoir. Ting. *Morison's History of African Plants.*

Hort. Amft. The History of rare Plants, which are growing in the Phyfic Garden at *Amfterdam*, by *Caspar* and *John Comelines*, printed at *Amfterdam*, in two Vols. *Folio*, 1701.

Hort. Elth. *Hortus Elthamensis*, or a Description of rare Plants which were growing in the Gardens at *Eltham*, as they are classed by Dr. *John James Dillenius* in two Vols. *Folio*, with Figures, printed at *London*, 1732.

Raii Hift. *Ray's History of Plants*, printed at *London* 1704, three Vols. *Folio*.

Cluf. Hift. *Charles Clufius's History of rare Plants*, printed at *Antwerp* 1605, *Folio*.

H. R. P. A Catalogue of the Plants growing in the Royal Gardens at *Paris*, printed at *Paris* 1665, *Folio*.

Park. Theat. Bot. The Theatre of Plants by *John Parkinson*, printed at *London* 1640, *Folio*.

Pluck. Phyt. *Plucknet's Phytographia*, i. e. a Delineation of Plants, printed at *London* 1692, *Folio*.

Bocconi rar. Plant. Figures and Descriptions of rare Plants, observed by *Paul Bocconi* in *Sicily*, and printed at *Oxford*, 1674, in *Quarto*.



The List of Annuals, &c. with their Botanical and English Names, as also the Culture of each Plant, with Figures of Reference to the Dutch Catalogue.

1st, *Abutilon grossularia folio flore rubro*; the proper name of this plant is, *Malva Caroliniana repens Grossularia folio*; it requires a gentle hot-bed in the spring, and when the plants are three inches high, they should be transplanted into the flower borders, and shaded until they take root, and planted into a warm situation, where they will flower, and perfect their seed: Those plants with the *Altheas* or *Mallows* make a fine appearance, flowering most of the summer months, and make a good show

show in the flower-garden; they require a rich sandy soil, and should have the same culture with the *Mallows*, which I mention here to avoid repetition.

2d, *Acetosa Vesicaria*, is a species of the *Sorrel*, the culture of which every gardener is acquainted with.

3d, *Ageratum folio serrato*.

The right name of this plant is, *Ageratum foliis serratis*, C. B. the *Common Maudline*. This is propagated in gardens for medicinal use; it requires a light undunged soil, and is increased by parting its roots in summer: But I am of opinion, there is another sort of this plant which is marked in the *Dutch Catalogues*, *Ageratum Alpinum foliis serratis glabris flore purpurecente*: *Purple flowered Alpine Ageratum*, with smooth leaves, serrated upon the outer edges of the leaves. This is a very hardy plant, being a native of the *Alps*, and must have a strong soil in a shady situation; it creeps upon the ground, and I have used it for edgings in the wilderness; it increases by seeds, and by dividing its roots in *August*.

4th, *Agrimonia Mexicana*. This I take to be the *Eupatorium Peruvianum folio subrotundo, trinervi et acuto, flore caeruleo*, *Vaille-memoires d'Acad. des sciences*. *Peruvian Hemp*, *Agrimony*, with a trinervous sharp pointed leaf, and blue flowers.

This is a hardy plant, but must have a sandy soil, and if raised on a moderate hot bed, it will come the faster on; if planted in pots, and under any common hot-bed frame.

5th, 6th and 7th, are already treated of, under the article *Abutilon*, No. 1.

8th, *Amaranthus maxima erecta*, or *Tree Amaranth*.

9th, *Amaranthus sparsa*, is the *Amaranthus maxima, panicula, longa, pendula, semine rubello*, or *Love-lies-a-bleeding*.

10th, *Amaranthus spicis viridibus*, or *Amaranth* with a red spike, and green tips upon the flower petals.

These three sorts I have seen raised and flowered pretty well in the open ground, but they are much better, to be raised on hot-beds. Wherefore I shall here treat of all the *Amaranthuses* mentioned in the catalogue, under numbers 393, 394, 395, 396, 397, 398, 399, 401, 402, and inform my readers of their management, by

which I obtained these beautiful flowers to their greatest perfection of bloom.

Having provided myself with good seeds from abroad, I sowed them upon a hot-bed of horse-dung the end of *February*; and in frosty nights covered them with mats laid over the glasses; I also sowed them very thin, that when I had occasion to transplant them, (which must be done) I lifted them with good balls of earth to preserve their roots.

If the hot-bed is in good proportion of heat, those plants will appear above ground in a fortnight's time, when you should prepare another hot-bed near the seed-bed; that, in transplanting, the plants may not suffer by being carried too far when they are young, and their roots tender: When this last bed is in a right temperature of heat, lift the *Amarantbs* from their seed-bed with a trowel, and with as much earth as you can; cover this nursery-bed with six inches of good, rich, fresh earth, where they are to be planted in rows, five inches asunder every way, and water them with a small bottle, and a few straws upon its mouth, whereby the water will drop and not gush out; and this method is better than to use a watering-pot, by which these very young plants are sometimes beat down, when they rot and die. I took care to shade them in the heat of the day, by laying mats over the glasses, until I perceived the plants to have struck fresh root; and in warm weather, I lifted up the glasses to give them air, and these I turned inside out, to dry the steam which might be collected upon them from the fermentation of the dung, for should it fall upon the young plants, it would be very prejudicial to them. Cover the glasses in the night, to prevent the cold injuring them: In three weeks these plants will grow large and near meet, and then I would advise planting each in a two-penny pot, and in a hot-bed of tanners bark, or in a glass-case made for the purpose of raising tender annuals. I chose to sow these plants on dung in preference to tan, on account of laying the earth over the dung, which I could not do on tan, and they spring better in earth laid on dung, than in pots sunk in tan.

Directions

Directions for the Construction of a double glazed Frame, for the raising of tender Plants, and the Manner of preparing the Bark Bed kept in it; of which an engraved Representation is given, for the readier Conception of its Form.

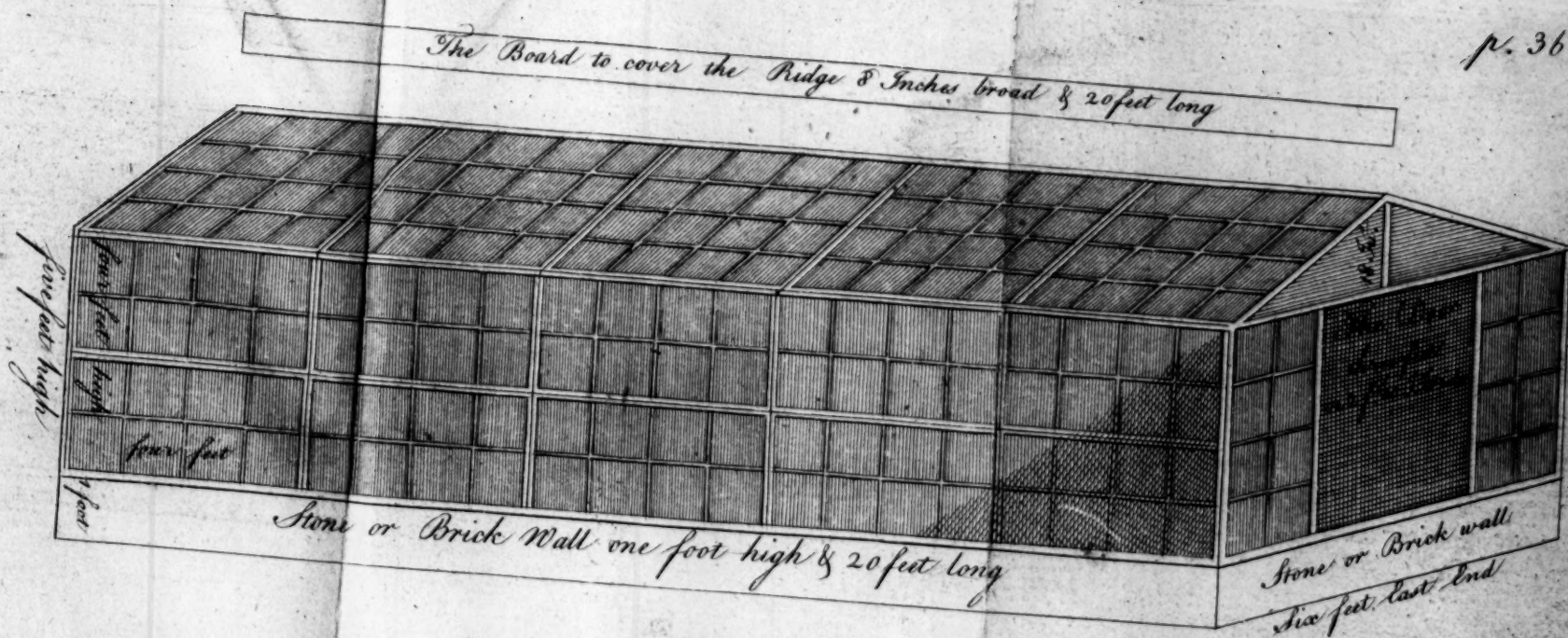
ABOUT the middle of *March* you are to provide yourself with tan, which must be first laid in an heap to drain; as it would not ferment or heat so well, or so equally as it would, when some of the moisture is drained off; and for this purpose I would make choice of the middling ground bark, as the heat of the largest is too violent, and that of the smallest evaporates too soon for the purpose of raising *Annuals*. As soon as you perceive the bark to begin to heat, lay it in your pit, which, in wet ground, should be half a foot below the surface of the earth, and in dry ground two; the pit being first inclosed with brick, and paved at bottom, to prevent the earth from mixing with the tan: The breadth of this bed should not exceed six feet; the length as you please, but not less than twenty. The frame I used for this purpose, was of the following dimensions.

Upon the wall, which is to be one foot above the surface, you should raise a square wooden frame, four feet in height. In this square frame sashes are to be placed in manner of window lights, which occasionally move up and down; over these other sashes are to slide in grooves from front to rere, meeting in the centre at top, running under a board which projects on each side, to carry the rain on the glass, to prevent its descending where the sashes meet; this board comes from the piece of timber that divides the slopes to the south from those to the north. The occasion of having sloping as well as upright sashes to the north is, that in Summer the frame might have all the air possible (when the light may be taken away) and in winter, the cold by them would be sufficiently excluded, to protect such plants as required no more than

common shelter from frost, which, when it became severe, I set my flue to work, which I had constructed in the wall of the north side, and in order to encrease the warmth, had shutters for the upright sashes, and others that moved in grooves to cover the sloping lights, which were also of use in stormy weather; when I had occasion to use the flue, I did not encrease the heat more than to raise the *Botanical Thermometer* to near temperate, and even at the distance of ten degrees below it, I found it sufficient to expel almost any frost.

The east and west ends of this house are also to be glazed, and at the east end I erected a small shed, to inclose the fire place of the flue, and the door of entrance. This glass-case was very convenient; for, in summer, I raised many *Annuals* (which by mismanagement, are dwarfs in our climate) to a great size; and in winter it was a reservoir to my tender plants.

But to return to the culture of the *Amarantbus*. As soon as I had planted them in their pots, I sunk them up to their rims in the tan; which if but of a moderate heat, I covered the slope-glasses of the case with mats, until I perceived the *Amarantbuses* had taken new root, when I opened both the front and slope-glasses to admit air in the day, in mild weather: By the beginning of *July*, I had them six or seven feet high, with strong stems, and preparing to flower; then I removed them to the greenhouse, placing them as near the front windows as I could, watering them all over, and in ten days set them out, when I saw an appearance of rain, and near a hedge, where they might be protected for eight days from the violence of the sun, and afterwards gave them a warm and calm situation, where they flowered, and ripened their seed to great perfection; which I took care to gather from the flowers, at the top of the spike or stalk, but not from those on the collateral branches. The soil I used for them was good, rich, light earth; and as these plants are very free in perspiring, I took care to give them a good share of water in dry weather, which made them grow strong and flower well.



The same culture will serve the two sorts of *Amarantoides*, or *Globe Amaranthus*, or *Everlasting Flowers*, both which are great beauties: They are named *Everlasting Flowers*, from their holding their beauty many years, when gathered in full bloom.

The purple kind has been an inhabitant of *England* for many years; the white kind is more rare, and vastly beautiful, and they will blossom in a good stove until *January*.

11. *Anagallis*, or *Pimpernel*, of which there are three sorts: *Anagallis flore albo*, C. B. P. white flowered *Pimpernel*.

12. *Anagallis flore Pbæniceo*, C. B. P. *Pimpernel*, with red flowers.

13. *Anagallis flore cæruleo*, C. B. P. *Pimpernel*, with blue flowers.

These grow in cultivated places in the corn-fields; but the best sorts require to be sown in the spring, on a bed of light earth, and to be kept clear from weeds, and well watered, where they will make a good appearance.

14. *Antirrhinum arvense flore albo*, *Snapdragon*, or *Frog's Mouth*; of which there are the following species in the *Dutch catalogues* of flower-seeds.

15. Do. *Flore rubro*.

The first sort is the *Antirrhinum medium flore albo patulo. virid. Lusitan*, or *Middle Snapdragon*, with a white spreading flower.

The second is the *Antirrhinum majus sexatile, flore minore purpurascens, foliis angustissimis*, Bar. Icon. *Great Rock Snapdragon*, with very small leaves, and a purple flower.

16. *Majus perennes flore albo*.

17. Do. *flore rubro*.

18. Do. *variegato*.

The first, *Antirrhinum latifolium flore albo, rictu luteo*, Boerb. the broad-leaved white flowering *Snapdragon*.

The second, *Antirrhinum latifolium flore rubro, rictu luteo*, the broad-leaved *Snapdragon*, with red flowers.

And the third, *Antirrhinum linariæ angustifolio eleganter variegato, flore rubro, riclu luteo*, striped Snapdragon.

These plants should be sown in *April* or *May*, in an undunged sandy soil; for if they are sown in rich land, they will neither flower nor prosper: In *October* following, I cut down their stems (especially those which attempt to flower the first year) within three inches of the ground, whereby their roots will be strengthened; and the beginning of *April* following, I transplanted them into the same sort of soil, to remain there for flowering: If they are transplanted into pots, I choose to perform this work the second year after sowing; and when they had done blowing, took off the off-sets from the mother plants in *April*, but always from their best flowers; then planted them in the pots in a lean sandy soil, mixed with some lime rubbish, which had lain a year incorporating with the earth before using it; by which means I have preserved these plants in vigour for several years, and have had them to ripen their seeds very well with me, from which I have raised many fine seminal varieties.

19. *Agremona Spinosa*, or *Agremona Mexicana*, *Tournef.* or the *Prickly Poppy*. This is an annual plant, which should be sown in *March*, and in *May* transplanted into the borders of the flower-garden, where it will thrive and perfect its seeds so well, that those seeds scattered on the borders will appear soon in the spring, and produce their flowers annually.

20. *Alarina Lobellii* is the *Asarini Lobellii* *Lugdun.* 915. *F.* 171. *Hedera sexatilis magno flore*, *B. P.* 306. *Antirrhinum foliis oppositis cordatis crenatis*, *H. Cliff.* 325. *Rock Aleboof*.

This plant requires the same culture with the *Snapdragon* or *Antirrhinums*; they grow best in a sandy, or rather a stoney soil; for if they are planted in a rich dunged soil, they never flower so well, and very often rot in winter; wherefore I would advise to plant them in court-yards, near walls, and upon a sandy or rocky soil, where they will make a handsome appearance in most of the summer months.

21. *Asra-*

21. *Astragalus maritimus* is the *Astragalus annuus maritimus*, procumbent, latifolius, floribus pediculo insidentibus, Tournef. Annual Trailing Milk-Vetch with broad leaves, and the flowers sitting on pedicles.

22. Do. *Stellatus* is the *Astragalus annuus*, procumbens, floribus glomeratis purpureis, Boerb. Ind. Annual Trailing Milk-Vetch, with purple flowers growing in clusters.

Both these sorts should be sown in light fresh earth in March, and duly watered; and if they are too thick sown, they ought to be so thinned, as to be two feet distance plant from plant, and kept clear from weeds; they flower in June and July, and their seeds ripen in August.

23. *Asphodelus luteus* is the *Asphodelus luteus et flore et radice*, C. B. Yellow Asphodel, or King's Spear. These plants are propagated by seed, which should be sown soon after they are ripe, three inches deep, upon a light, fresh, sandy soil, in a warm border, in August or September, which is the best season, and I would choose to perform this work in this manner: Make a bed four feet broad, and as long as you please; then sow your seed, thrusting them one inch deep with your finger below the surface of the bed, and afterwards cover them with one inch more of the same earth; in the spring these plants will appear, when they must have an inch more of fresh earth laid upon them, which will greatly strengthen their young roots; they must be kept clear from weeds, and watered in dry weather: In October, a new cover of two inches of the same earth must be put upon them: The beginning of March following, I planted them out into borders, where they are to remain and flower; they are also propagated by dividing their roots in autumn, once in three years, but not oftner; and observe to let six inches of earth be above the root when it is planted, and at twelve inches distance root from root: Those roots, which you intend to propagate by off-sets, should have their stalks cut down so soon as their flowers fade; the ripening of their seeds wastes the roots, and hinders them to off-set. Some persons advise to transplant them the first year after sowing, but that is a practice I would not recommend, as they have not strength to flower the se-

cond year; and should that work be performed at *Michaelmas*, it is doubted if these young plants would outlive a severe winter.

24. *Aster Cbinensis magna, Flore caruleo.*

25. — *flore albo magno.*

26. — *flore purpureo.*

27. — *minor flore albo.*

But their botanical names are, *Aster annuus caule villosa, purpurascens Eryngii folio, flore maximo purpureo, pulcherrimo, semine violaceo, Kian-sita, Sinensis Jussieu, H. R. P. Annual Star-wort* from *Cbina*, with purple hairy-stalks, eryngo leaves, and a beautiful large purple flower, and violet-coloured seed. There are also some of them with blue, large white, and small whitish coloured flowers; and one kind, the seed of which I had lately sent me, whose flower leaves are white, and most elegantly striped with a bright scarlet colour.

These are all vast pretty ornaments to the flower-garden in autumn; they should be sown upon a rich sandy border in the middle of *March*, and when they are two inches high, should be transplanted into a nursery-bed of the same soil, and be well watered and shaded from the rays of the sun, until you perceive them to be taking new root: Some of the strongest may be lifted and planted in pots, filled with the same soil, to adorn court-yards and parlours, where they will make a most handsome appearance: They flower in *August, September* and *October*, and some of them ripen their seeds. I have raised many seminal varieties, besides those mentioned in the *Dutch* catalogues, from seed of my own saving; to procure which, I used two methods: In *July*, I sowed some of their seed in pots, and during the winter, gave them shelter, either in the green-house, or under a frame, to keep them from the frost, which would entirely ruin them: By this method, my plants were strong, fit to plant out in *April*, and flowered in *May* and *June*; and I had from these plants as fine ripe seed in *September*, as any which came from abroad; from which, *anno 1749*, I raised many extraordinary beautiful, seminal varieties of pink, deep carnation, blue, white, and purple colours, and one in particular with a striped blue and

and white flower. Some of these seeds I sowed in *February*, upon a moderate hot-bed, which pushed them forward; these I planted out early in the month of *April*, and had the same success with them, as I had with those which I sowed in autumn: At which season I would recommend the sowing of all such flower-seeds, when there is shelter to preserve them in winter.

We are now come to the double purple sort.

28. *Aster Conizoides*.

29. *Jacoea folio*.

These are the two sorts of *Annual Asteriscus*, or *Yellow Starworts*, at least, if any flower can be so named: They must be sown early in the spring, on a warm open border: It is needless to transplant them; for it is better to allow them to remain where they are sown; by which means, they will flower sooner, and of consequence seed better than if they were transplanted.

30. *Atriplex baccifera* is the *Chenopodio-morus minor*, Boerb. Ind. *Smaller Mulberry Blight*, or *Berry Bearing Orach*.

31. *Odorato* is the *Chenopodio-morus major*, Boerb. Ind. *Greater Mulberry Blight*, or *Strawberry Spinage*; but why it is in the *Dutch* catalogue named *Odorato*, is what I cannot comprehend, because really this plant has but a very faint smell, if any.

The uncommon and beautiful appearance of the flowers and seed-vessels of these two last named plants, makes them deserve a place in every good garden. That they might blossom and seed early, I used the following culture: About the middle of *February*, I sowed them upon a hot-bed, whose greatest heat was over; and as soon as they came up, gave them air in good weather, by taking off the glasses, that they might not be drawn too much, observing also to water them when occasion required: Towards the middle of *April*, I transplanted them into a bed of rich ground, eight inches distance, plant from plant, lifting them with as much earth out of the hot-bed as I could, that their tender roots might not be injured by transplanting: This work I performed in an evening, and watered them with a bottle between their roots, rather than with a garden,

garden-pot, which is too violent for most young plants. I covered their bed with mats sustained by arches of hoops, until I perceived they had taken new roots; and in about six weeks after, I thinned them if too thick: When they began to grow tall and spire up for flower, I set down iron-wires close by their stems, to which I tied them, by which means they made a more beautiful appearance than if they had trailed upon the ground. They flowered in June and July, and many of their seeds were ripe by the beginning of August, which when I perceived, and that their seeds were falling upon the ground, I stirred the surface of the bed with my hand to cover them; and in about six weeks after, I had a plentiful crop of young seedlings, which, about the beginning of October, I transplanted into large pots, and put them under hot-bed frames to save them from the severities of the winter, by which management I had a great many plants early in the spring to plant out.

I used also to plant pots full of them, to flower in chambers, and in the green-house in the summer, with *Balsamines*, *Amaranths*, *Tuberoses*, &c.

The 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42, are all feminal varieties of the *Balsamina fœmina*, *Female Balsam*, or *Balsam Apple*. All those seeds must be sown on a moderate hot-bed early in the spring, observing to give them much air, that they may not be drawn slender and long by too much heat. So soon as they rise to eight inches, lift them with a good ball of earth, and put three of those plants into a three halfpenny pot; but to have them in the greatest perfection, observe these few following rules.

1mo. As to the four first sorts mentioned in the *Dutch catalogues*, viz. *Balsamina fœmina flore albo*. do. *incarnato*, do. *variegato*. do. *purpureo*. I did not chuse to purchase their seeds, as they are but single flowers, and few double blossoms are to be expected from them; and as we have the seeds of the double flowers specified in the same catalogue, I thought it more proper to purchase those, from which I might expect a fine blow.

2do. In lifting those plants from their hot-bed, I observed to pot those only which had spotted stems, from which

which I always obtained variegated flowers, having, as I said before, transplanted them into pots filled with rich, light, fresh earth. I watered them well, to settle the earth about them, and set them in to my glass-case, for forcing of *Annuals* (which I have already described.) I set their pots but half-way in the tan-bark, lest too great a heat might injure their tender roots; but the great fermentation of the bark once over, I sunk the pots to their brims, observing at the same time to water and shade them well, until I observed that they had struck new root; in six weeks after, they were some three, some four feet high, when I removed them from this glass-case, and put them into the green-house, where they blossomed most beautifully, observing to tie their stems to long small reeds, to keep them from falling, breaking, or wind-waving.

3tio. As soon as they began to expand their blossoms, I observed to pinch off all such as had but one colour, preserving those that were variegated, by which means I had always good seeds from my own plants, from which I raised numbers of vast fine flowers every year, preserving none but the most beautiful.

43. *Balsamina foemina, seu Noli me tangere*; this may be sown in *March*, in a bed of light earth, and may remain where it is sown, but be sure to keep it clear from weeds: It is preserved only by the curious, for the diversion it affords to persons who handle its seed vessels when ripe, which burst-with uncommon elasticity upon the least touch, as most kinds of this flower do; wherefore great care should always be had in gathering the seeds of their best sorts.

44. *Bellis Americana Coronopi flore luteo*.

The *Latin* word *Bellis*, though improperly given to this plant in the *Dutch* catalogues, induces me to treat of the garden kinds of *Bellis's* or *Daizies* which I had forgot. They are very handsome, and make a very fine appearance, either when they are planted in clumps, or in edgings to borders in a shady situation; and there are six or seven sorts of them which deserve our regard.

They

They delight in a good hazely loamy earth not dunged, and must be transplanted, and their roots must be parted every year the beginning of *March*, which is the best method to prevent their degenerating, or flying off into the flower of the wild *Daizy* or *Gowan*; they prosper best in a shady situation, but not under the drops of trees. But we return to describe,

45. *Bellis Cabo de bon Esperance.*

46. ————— *Majus.*

The first of these is the *Chamæmelum Lusitanicum latifolium*, five *Coronopi folio Breynii*, or *Broadest Leaved Portugal Chamomile*. This is a hardy plant; its seed should be sown in the beginning of *March*, on a bed of rich light earth, keeping the ground clear from weeds, and giving frequent waterings; when they are two inches high, transplant them into beds at ten inches distance; and when they are four inches high, they should be then transplanted into large borders, where they are to blossom, shading them from the sun, and watering them, until they have taken root, where their flowers will, with others, make a very beautiful appearance.

45th, *Leucanthemum Lusitanicum folio argenteo laciniato*. *Inst. R. H. Portugal Ox-eye Daizy*, with a silver-jagged leaf. This plant requires the same culture with the former, and some of them may be planted in pots, to adorn rooms, where their shining leaves will make a very good appearance.

46th, *Chamæmelum fœtidum*, C. B. *Stinking Chamomile*, or *May-weed*: This requires the same culture, but should not be transplanted; but if sown too thick, should be thinned, and the ground afterwards smoothed over with the hand; they require often watering, which will much promote their growth.

47th, *Bidens Canadensis latifolia flore luteo Tournef.* *Broad-leaved Canada Hemp-Agrimony*, with a yellow flower; this being a native of *Canada*, must be raised on a hot-bed early in the spring, in order to have it perfect its seed in *Britain*; they may also be planted into pots, to adorn court-yards or parlours; they agree best with a light soil.

48th, *Blattaria alba*, J. B. the *White Mulleine*.

49th,

49th, *Blattaria lutea*, C. B. the yellow Moth Mulleine: I sowed them in July on a dry rubbish soil, and in winter, in severe frosts, I covered them with pease haulm; in the spring I transplanted them into the same sort of soil, wherein they flowered and seeded very well, and much stronger than those plants which were sown in the spring.

There is another sort of this plant, called *Blattaria flore roseo*, Boerb. Ind. or Rose Coloured Moth Mulleine. This is preferable to any of the two former sorts; it requires much the same culture (with this difference) that I sowed it in pots, which I put under a hot-bed frame, to preserve it from the severities of the winter: In the spring following, I transplanted it into a dry gravelly soil, where it prospered well for several years.

50. *Borago Cretica flore variegato* is the *Borago flore pallescente, roseo, aut suave-rubente*, Tournef. The Borage, with pale or rose-coloured flowers.

51. *Borago foliis variegatis*, Hort. Lugd. Bat. The striped leaved Borage.

52. *Borago major flore cæruleo*, J. B. Borage with large blue flowers; they should be sown in March, in a poor dry soil, wherein they will flower and seed best.

53. *Buglossum angustifolium majus flore albo*, C. B. P. Greater Narrow-leaved Bugloss, with a white flower; these plants should be sown in March, in a shady place in the wilderness quarter, where they will flower and perfect their seeds.

54. *Buphtbalmum papaveris folio*, &c. is the *Buphtbalmum tanaceti folio orientale flore luteo amplissimo*, Tournef. the Eastern Ox-eye with large yellow flowers.

55. *Buphtbalmum tanaceti minoris folio incano, flore sulphureo amplissimo*, Boerb. Ind. alt. Ox-eye with hoary leaves, and a large sulphur-coloured flower.

56. *Buphtbalmum orientale tanaceti minoris folio, flore albo amplissimo*, Tournef. Cor. Eastern Ox-eye with large white flowers.

All these flowers should be sown in March on a light undunged soil, and in May be transplanted into the flower-borders, or into pots, to adorn chimneys; they flower in July, and perfect their seeds early in September. I have also sowed them upon a moderate hot-bed in March with great success.

57. Bu-

57. *Bupleurum perfoliatum longifolium annuum*, Tournef. Annual long-leaved perfoliated Hare's Ear; this thrives best in a good garden soil, and is to be sown in March.

58. *Calaminta magno flore*, C. B. Calamint with large flowers; to be sown early in spring, on a light dry soil, wherein they flower and seed well.

59. *Calendula flore sulphurino*, is the *Caltha vulgaris flore Citrino*, C. B. the Common Marygold. This plant is improperly named *Calendula*, in the catalogue, for that name is only applicable to the African Marygold, whereas the most proper name of this plant is *Caltha*, notwithstanding Doctor Linnæus classes the *Calendula's* amongst the *Caltha's*.

60. *Caltha vulgaris flore, pallido*, C. B. the Pale coloured Marygold.

61. *Caltha polyanthos maxima*, C. B. the Largest double Marygold.

62. *Caltha media, folio longo prolifera*, Boerb. Ind. the Cbilding Marygold.

All these plants should be sown in beds or borders of common earth in March, the two first sorts are pot-herbs, and, if permitted to stand, will, by the dropping of their seeds, sow themselves.

The seeds of the two last mentioned should be carefully gathered, and the plants transplanted into places where they are to remain and blossom. This operation should be performed, when the plants are three inches high, and when there is an appearance of rain; but it will be proper to exchange these seed with a neighbour or nurseryman, once every two years, otherwise they are apt to degenerate.

63. *Capnoides*, Tournef. Podded Fumitory. This is a very pretty Annual; to be sown in March, and when the plants are young, they may be transplanted into pots or the borders of the flower-garden, where, if they are allowed to shed their seeds, they will give abundance of plants the ensuing summer.

64. *Carduus italicus spinis horribilibus*, J. B. Great thorned Italian Thistle.

65. *Carduus humilis alatus*, five *Carduus annuus Mariæ*, folio lituris nigris notato, H. Cathart. Dwarf Annual Lady's Thistle, with dark spotted leaves.

66. Car-

66. *Carduus minor flore luteo*, C. B. Lesser Yellow Thistle.

All these plants should be sown in a dry poor soil in the spring, but should not be transplanted. They perfect their seeds very well in Britain.

67. *Caryophyllata flore luteo*, is the *Caryophyllata montana, flore magno luteo*, J. B. Mountain Acons with great yellow flowers.

These plants may be sown in March, should be transplanted into moist shady borders, and may be increased by parting their roots in the spring, when they will make a fine appearance in a wilderness, without any culture, but keeping them clear from weeds.

68. *Caryophyllus Sinensis supinus Leucos folio, flore pleno*, Boerb. Ind. alt. the Double China Pink.

69. *Caryophyllus Sinensis supinus. Leucofolio flore vario*, Tournef. the variegated China or Indian Pink.

These plants from seeds afford a charming variety of very rich colours, from whose flowers only the seeds are to be gathered, for they are very subject to degenerate, and they have this particularity in them, that from the seed of the double flowers come always double flowers, but the seeds saved from single flowers seldom produce double flowers.

I always sowed the seed in April on a moderate hot-bed to hasten their vegetating; and after they had arrived two inches high, planted them out, (having first, whilst in the hot-bed, inured them to the air) into a nursery-bed; so soon as I perceived them spring up to flower, I cut them all off, never suffering them to flower the first year, for thereby their roots are much injured; they endure the cold very well in winter; and the succeeding season I allowed them to flower at pleasure: Of the fine sorts, so soon as they appeared, I took off the off-sets and planted them in the borders of the flower-garden, whilst I kept their mother roots in the nursery-bed to give me seed. Nor did I allow these young plants to flower the first year after transplanting, but nipped all their flower-buds off. With this management I had very fine flowers for many years together.

70. *Carthamus officinarum flore croceo*, Tournef. Bassard Saffron or Saff-flower; this plant delights in a good rich soil,

soil, and when they are two inches high, should be transplanted; or if they are sown too thick, they should be thinned, for their branches spread much, by which means their seeds do not ripen so well. They make use of this plant in *Germany* for dyers, and sow them in the open fields.

71. *Caucalis Monspeffulani*, *Tournef.* or *Bastard Parsley* of *Montpellier*; this plant grows well in rich garden ground, and should be sown in *March*: It is no great beauty, and is no otherwise to be regarded than as it makes a variety in your collections. It seeds well in *Britain*.

72. *Cerintbe quorundam major*, *flore albescente*, *J. B.* the *Large Honeywort* with whitish flowers.

73. *Cerintbe quorundam major*, *flore flavo*, *folio, spinoso*, *J. B.* the *Large Honeywort* with prickly leaves and a yellow flower.

74. *Cerintbe flore versicolore ex albo et purpureo*, *Boerb. Ind. alter.* the *Honeywort* with purple and white party-coloured flowers.

75. *Cerintbe flore versicolore ex albo et rubro*, *Boer. Ind. alter.* the *Honeywort* with party-coloured flowers of red and white.

The seed of all these plants should be sown in autumn after they are ripe, for if they are kept until the spring they sometimes do not germinate; they are to be sown on a warm border by a wall, and they will withstand the winter severities without covering; in the spring, in moist weather, they may be transplanted into the borders of the flower-garden; where they will make a pretty variety; and if they are there allowed to shed their seed, you will have plenty of plants the ensuing summer.

76. *Chrysanthemum matricariæ folio flore albo pleno*, *H. C.* the *Double White Corn Marygold*.

77. *Chrysanthemum matricariæ folio, flore luteo pleno*, *Boerb. Ind.* the *Double Yellow Corn Marygold*.

78. *Chrysanthemum Creticum, petalis florum fistulosis*, *Tournef.* the *Quilled Corned Marygold*.

79. *Chrysanthemum matricariæ folio, flore pleno sulphurino*, *Boerb. Ind.* the *Double Sulphur-coloured Marygold*.

I always sowed those plants upon a moderate hot-bed, in order to have them early; and when two inches high,

high, I transplanted them into a nursery-bed, where I suffered them to remain until they were preparing to flower, when I marked such as were double and single, the latter I rejected, but the double I planted in the borders, and in pots; these in the borders grew very large as to the plant, but had but few flowers; these in the pots, by having their roots confined, flowered better, but did not grow so strong as to their leaves and stalks; in both of these methods I was much disappointed in gathering good seed, wherefore I planted cuttings of the double in pots, which took root in three weeks; in winter I covered them with a hot-bed frame, and sometimes in great frosts put them into my glass-case, with the *Sedums* and *Ficoides*'s, where I preserved them through the winter. In April I planted them out to flower in a middling soil; from the seed of these plants I always had admirable flowers. The same culture I used to the different sorts of the *Flos Africanus*, and the *Flos Tunetanus*.

80. *Chamaepitys moschata, foliis serratis: An prima Dioscoridis?* C. B. The Ground Pine with serrated leaves; this plant delights in an undunged soil. It is an *Annual*, and should be sown soon after its seed is ripe; for if they are kept till the spring, the seed often fails.

81. *Cicer sativum, flore candido*, C. B. P. white flowered Garden Chickes.

82. *Cicer sativum flore ex rubro purpurascens, semine rubro*, C. B. Garden Chickes, with purplish red flowers and a red seed.

These seeds should be sown in the beginning of March, in rows three feet asunder; and when they appear, they should be hoed up like pease in drills; they flower in July, and their seed ripens in August and September.

83. *Clymenum Hispanicum flore vario, siliqua plana*, Tourn. Spanish Chickling Vetch, with a variegated flower, and a plain pod.

I choose to sow these seeds in September: They endure the cold very well, and will flower sooner than those sown in the spring, and perfect their seed better; they delight in a dry, warm, undunged soil.

84. *Coluthea Aethiopica, flore Phæniceo folio barbæ Jovis*, Breyn. Cent. Ethiopian Bladder Senna, with red flowers and leaves like the Silver Bush.

These plants I chose to sow on a hot-bed early in the spring; and when the plants were four inches high, I transplanted them into pots filled with fresh sandy earth, shading them until they had taken new root. In winter I put them into an open glass-case, covering them from frost; and the ensuing spring, planted them by a warm wall in the open border, where they produced many fine scarlet flowers, and perfected their seed very well: I also observed to tie their stalks to sticks, to prevent the winds from breaking their tender branches, by which their beauty would have been lost: I also observed never to put them into a green-house, for in that situation they would have been drawn up too much, to the great prejudice of the plant.

85, 86, 87, 88. Are all seminal varieties of the *Chondrilla*, or *Gum succory*: There is little beauty in these plants, and they should be sown in the spring upon an open border, where they will flower and seed very well.

89. *Conyza foliis argenteis*, *J. B.* Flea-bane with silver leaves.

90. *Conyza foliis aureis*, *C. B.* Flea-bane with yellow leaves.

Those may be sown in the spring in a dry soil, where if kept clear of weeds, they will thrive well; some of them I chose to sow in pots.

91. *Consolida Anglica flore albo*, is the *Symphitum*, or *Consolida major fœmina, flore albo*, *C. B. P.* The Greater Female Comfrey with a white flower.

92. *Consolida Anglica, flore cœruleo*, is the *Symphitum orientale, folio subrotundo, aspero, flore cœruleo odoratissimo*, *Tourn. Coir.* Eastern Comfrey with a rough roundish leaf, and a very sweet smelling blue flower.

93. Seminal variety of the 92d sort.

94. *Symphitum Creticum echii folio angusto, villis longissimis horridis, flore croceo*, *Tourn. Coir.* Candy Comfrey, with a narrow *Viper's Bugloss Leaf*, covered with very long hairs, and a saffron coloured flower.

95. A seminal variegation of the former plant.

96. *Symphitum echii folio ampliore, flore albo* *Infl. R. H.* Comfrey, with a large *Bugloss Leaf* and a whitish flower.

All

All those plants are propagated by sowing their seed in *March*, in a fresh undunged soil; they should be thinned, and in *August*, transplanted into the places where they are to remain to flower and perfect their seed.

97, 98, 99, 100, 101, 102, 103, 104, 105, 106. Are all feminal varieties of this plant named the *Consolida regalis* in the *Dutch* catalogues of flower seeds, which is the *Delphinium* or *Larkspur*.

The seed of all those plants should be sown in autumn, immediately after they are ripe; if they come up before winter, they are hardy enough to stand the frost; in the spring when they are two or three inches high, they should be transplanted into a nursery-bed and placed one foot asunder every way, as they branch out very much, and there they may remain to flower, which they will do in *June* and *July*, and ripen their seed in *August*, observing to keep the best colours, and double flowers for seeding, by which means you will improve them, and raise great varieties of this beautiful flower.

107. *Convolvulus auriculatus Baconi*, I take to be the *Convolvulus maritimus nostras, rotundis foliis Soldanella officinarum, Mor. Hist.* This plant grows on the sea-shore, or on a gravelly sandy place in the garden; it may be sown in the spring.

108, 109, 110. Are perfect weeds in a garden, and of those there are many feminal varieties of colours; they should be sown on a bed of light earth in the spring, where they will flower, and perfect their seeds in autumn.

111. *Cotula flore albo* is the *Chamemelum Æthiopicum lanuginosum, flore albo Breynii*, woolly *Ethiopian Chamomile*, with a white flower.

112. *Do. Flore luteo* is the *Chamemelum Æthiopicum lanuginosum flore luteo, Boerb. Ind.* The *Woolly Ethiopian Chamomile* with a yellow flower.

I always chose to sow the seed of these plants on a hot-bed in the spring, and afterwards I planted them abroad, where they flowered and perfected their seed in autumn.

376 The GARDENER'S NEW DIRECTOR.

113. *Cucurbita* or *Squash*. They require to be sown upon a moderate hot-bed; and in *May* you may transplant them into rich earth, near to a wall, against which you may tie up the branches of these *Squashes*, where, with their fruits, they will make a very pleasing appearance.

114. *Cucumis Asininus*, *Squirting Cucumber*, or the *E-laterium officinarum*, *Boerb. Ind.* This plant is preserved in gardens for diversion: For when the seed of the plant is ripe, whenever they are touched, they rush out with impetuosity on the persons who touch them; the seed should be sown on a warm border in *March*, at about nine or ten feet distance, where they will thrive exceedingly; and, if suffered to shed their seed, will give you next year, a plentiful crop of young plants.

115. *Cyanus arvensis diversicolor* is the *Cyanus segetum flore vario*, *Corn-bottle* with a variable flower.

116. Do. *Flore albo*, *C. B.* white flowered *Corn-bottle*.

117. Do. *Flore caeruleo*, blue flowered *Corn-bottle*.

118. Do. *Flore purpureo*, purple-flowered *Corn-bottle*.

These seeds should be sown in autumn, immediately after they are ripe, and in spring, they may be transplanted into borders, where they will flower and seed well.

119. *Cyanus Orientalis, flore albo odorato* is the *Cyanus floridus odoratus Turcicus, seu Orientalis major, flore albo*, the white flowered *Sweet Sultan*.

120. Do. *Luteo odorato* is the *Cyanus floridus odoratus Turcicus, seu Orientalis major flore luteo, H. L.* the *Yellow Sweet Sultan*.

121. Do. *Purpureo odorato* is the *Cyanus floridus odoratus Turcicus, flore purpureo, Park.* *Purple Sweet Sultan*.

The yellow kind I always sowed upon a hot-bed, to make it vegetate, and afterwards planted them out in *May* into the borders, where they made a gay appearance, being preferable to the other two sorts in smell and colour. The white and purple-flowered *Sweet Sultans* I sowed in open borders, where they flowered well. All the sorts require to be well watered in dry weather. I observed always to keep the earliest blowers for seed; as soon as they attempted to seed from two or three

three flowers, I cut off all the others which hastened the perfecting of their seeds, and this method I practised with many annual flowers, which continued in bloom until the frost pinched them, whereby I gathered good seeds.

122. *Ervum verum Camerarii*, *Camerarius's* true-jointed *Podded Vetch*; their seed should be sown on a warm border, at ten inches distance, seed from seed, whereby their seeds will ripen well: They must be earthed up like pease.

123. *Ervum equinum filiqua singulari*, *C. B.* the *Horse Shoe Vetch* with a single pod; the seed should be sown in *March* on a warm border, in the place where they are to remain, one foot seed from seed, for they spread much; they will flower in *June*, and ripen their seed the beginning of *September*.

124. *Ervum equinum filiqua multiplici*, *C. B.* *Horse Shoe Vetch* with many pods. This requires the former culture in every respect.

125. *Fœnum Græcum sativum*, *C. B.* *Garden Fennugreek*; these plants should be sown in a light soil in *March*, and kept constantly clear from weeds, and should be thinned, so that the plants may stand where they were sown, at one foot distance plant from plant; they will flower in *June*, and perfect their seed in *September*.

126. *Flos Adonis hortensis, flore minore atrorubente*, *C. B.* the common *Flos Adonis*, with a red flower; the seed of this plant should, with other *Annuals*, be sown in *August* on borders, where they will out-live the winter, and flower in *April*, and in most of the summer months, and ripen their seed very well. There is another sort called *Flos Adonis sylvestris foliis longioribus, flore luteo*, *C. B.* yellow-flowered *Flos Adonis*, which requires the same culture, and is a far prettier flower in every respect; it flowers early, and makes a most beautiful appearance. For this see article *Bupbthalmum*, &c.

127. *Flos Africanus aureo pleno* is the *Tagetes maximus rectus, flore maximo multiplicato, aurantii coloris*. Greatest upright *African Marygold*, with a very large orange-coloured flower.

378 The GARDENER'S NEW DIRECTOR.

128. *Tagetes maximus rectus, flore maximo multiplicato fistuloso, aurantii coloris*, upright *African Marygold*, with a very large orange coloured piped flower.

129. *Tagetes maximus rectus, flore maximo multiplicato pallidè luteo odorato*. Greatest upright *African Marygold*, with a very pale yellow double flower, with a sweet scent.

130. *Tagetes maximus rectus, flore maximo multiplicato pallidè luteo et fistuloso*. Greatest upright *African Marygold*, with a large double, pale and piped flower, called the *Quilled African*.

131. *Flos Tunetanus vulgaris*. Before I describe this plant and its varieties, I must make the proper distinction between the *Flos Africanus* and the *Flos Tunetanus*, which are often blended together, under the denomination of *African* and *French Marygolds*. The *African Marygold* is a native of *Africa* about *Tangier*, on the *African* side of the *Mediterranean*; whereas the plant here named *Flos Tunetanus* is a *Chinese* plant, and was first sent over to the King of *France's* royal gardens at *Versaille*, by the *French* missionaries, from whence it was distributed amongst the curious in *Europe*; and from its being first raised in *France*, it has been called the *French Marygold*, though both plants require the same culture.

132. *Tagetes Indicus minor, flore simplici sive Caryophyllus Indicus, J. B.* Common *French Marygold*, with a single flower, commonly called *Indian Clove Gillyflower*.

133. *Tagetes Indicus minimus, flore sericeo hirsutie obfuso, H. L.* Smallest *French Marygold*, with a small red hairy flower.

134. *Tagetes Indicus medius flore luteo multiplicato, H. L.* The middle *French Marygold*, with a double yellow flower.

135 and 136, are seminal varieties of 132, as is also the piped variegated sort 130, all of which are *Annuals*. To have these flowers blow to great perfection, it will be proper to use the following culture: In *March* sow them upon a moderate hot-bed, such as has served to raise your early cucumbers, (for a hot-bed of more heat would

would injure them;) when they are two inches high, transplant them into another moderate hot-bed, observing to shade the plants, and to water them often, but gently, until you perceive they have taken new root; the more air they are indulged with every fine day, the better they will prosper. When they are seven or eight inches high, transplant them into beds in the open ground, covering them with double mats laid upon arched hoops; here they may remain until the middle or end of May; then prepare a bed of good, rich, light, sandy earth, and observe to throw out the single flower, which you will know by their long narrow flower-pods; the double have their pods much swollen; transplant them into nursery beds, lifting them with balls of earth, or into pots to adorn rooms, or court-yards, those in beds at fifteen inches asunder, where they will flower and seed to great perfection: These I designed for seed, I nipt off their side branches, and never suffered them to bear more than three or four heads, and tied their stalks up to wires or rods to sustain them from being broken by winds, &c. By which method I raised many seminal varieties of both sorts, observing to plant most of the sweet scented sorts in pots for rooms, the others having a disagreeable scent. By this management, and setting them for three weeks into the glass-case, I have had them five feet high, which rather appeared like flowering shrubs than annual plants; those in pots continued flowering all the winter in the house, and those in the open borders until the frost nipped them;—they will do indifferently well, if sown in the open ground, but will not bear a large flower.

137. *Flos Principis flore albo*; but its true name is the *Amaranthus spica albescente habitiore*, Martin. *bist.* *Amaranthus* with a great whitish spike of flowers.

138. A seminal variegation of the former, as is also the 139th.

These require the same culture with the *Amaranthus*, and thrive with less forcing, but as there is no great beauty in those plants, they seem at present to be much neglected in our *English* gardens.

The 140, 141, 142, 143, 144, and 145, are all seminal varieties of the flower named here *Flos solis*, which is botanically called the *Corona solis*, *Tabern.* All these plants are natives of *America*; notwithstanding they flower so well in this island. These here mentioned are *Annuals*, and in the beginning of *March* should be sown upon a bed of light fresh earth; when they are three inches high, transplant them into a nursery bed, from which they may be removed when they are a foot high, into borders or bosquets, of large flowering plants in the garden, watering them well until they have taken root; and when they flower, tie them up to long stakes, that the wind may not break them; their chief beauty consisting in their being erect, so as to shew their large stalks and blossoms to the greatest perfection.

146. *Galega vulgaris floribus penitus candidantibus*, C. B. Common Goat's Rue with white flowers.

147. *Galega vulgaris, flore cærulea*, C. B. Common Goat's Rue with blue flowers.

These plants are best propagated by sowing their seed in a bed of rich light earth; keep them clear from weeds, and if the plants are too thick, thin them to one foot, plant from plant, and the second year they will flower, and will continue to do so for some years, provided they are not suffered to seed, after which they soon decay.

148. *Garidella foliis tenuissimè divisis*, *Tournef.* There is no *English* name for this plant, Dr. *Tournefort* having named it *Garidella*, in honour to Dr. *Garidell*, professor of physic at Aix in Provence. This plant requires the same culture with the *Galega*, and should never be transplanted.

149. *Geranium latifolium annuum floribus cæruleis longissimis*, *Hort. Oxoniensis*, broad leaved annual Cranes-bill with a blue flower, and a very long beak.

150. *Geranium cicutæ folio Moschum redolens*, C. B. P. Musk'd Cranes-bill.

151. *Geranium tenui-folio Myrrhinum, flore amplo purpureo, semine nigricante*, *Barr. obscur.* fine cut leaved Crane's-bill, with a large purple flower and a dark coloured seed.

These

These should be sown in *March* on a bed of fresh light earth, and may be allowed to stand to seed, which they will drop in autumn, and the young plants will come up before winter; they will flower early the succeeding spring: Keeping them free from weeds, and thinning them, if too thick; this is all the culture they require.

152. *Glaucium flore luteo*, Tourn. Yellow horned Poppy.

153. *Glaucium orientale flore rubro maximo*, Tourn. Coir. Eastern horned Poppy, with a great red flower.

154. *Glaucium flore violaceo*, Tourn. Blue flowered Horned Poppy.

The first sort is a triennial plant, if it is sown in a light undunged soil; but if it is sown in a rich soil, it flowers the first year, and then often dies.

The second sort requires the same culture. I sowed both sorts in *March* in poor ground.

The third grows in many places in *Cambridgeshire* in *England*, and requires the same culture; if they flower the first year, cut off their flowers; and the second year you may suffer them to flower, when they will perfect their seeds much better than in the first year.

155. *Gramen Alopecuroides majus*, Germ. Emac. the Common Fox-tail Grass.

156. *Gramen ganniculatæ locustis maximis Pœnicipis tremulis*, Tourn. the greatest Quaking-grass, with red pannicles; there is a sort which is white.

157. *Gramen tremulum minus pannicula parva*, Farklin. Smaller Trembling-grass.—All those sorts should be sown in *March*, or in autumn, on a bed of light earth, and require no other culture, but to be kept free from weeds.

158. *Alkekengi officinarum*, Tourn. Common Winter Cherry of the Shops.

This plant is propagated by sowing its seed in the spring on an open undunged border; and when they are an inch high, they may be transplanted into pots, and set in the shade, and in *November* will they their fruit, which at first is inclosed in a tunicle; which, as it ripens, bursts, and displays a fine gold coloured fruit in
December.

December. I chose to plant them in pots, to confine their roots, which in the open ground spread too much, in which they may be planted.

159. *Hedysarum annuum majus Zeylanicum mimosæ foliis*, Tourn. the greater annual French Honey-suckle, with leaves like the Sensitive Plant.

160. *Hedysarum clypeatum flore suaviter rubente*, H. Eyst. French Honey-suckle, with a delicate red flower.

161. *Hedysarum clypeatum flore albido*, Tourn. white-flowered French Honey-suckle.

The first sort should be sown on a hot-bed in the spring, and then may be transplanted into pots when it is two inches high, and set in a warm situation, where it will flower and seed well: The other two sorts should be sown in *March* on a bed of light earth, and about the middle of *July* should be transplanted into borders or pots, (especially the red flowering sort) where they will flower much better than if they were transplanted in the spring. The red sort makes a fine show with its scarlet blossoms.

162. *Hedypnois annua* Tourn. Crooked seeded Hawk-weed.

These plants should be sown in *April*, in the places where they are to remain (as they do not agree with being transplanted) on a bed of light earth, and to be left at nine inches distance plant from plant.

163. *Hieracium barbatum flore sulphureo medio nigrum*, Lesser Hawk-weed, with sulphur coloured flowers, and black bottoms.

164. *Hieracium barbatum medio nigrum minus*, H. L. Lesser yellow Hawkweed.

165. *Hieracium murorum folio pilosissimo*, C. B. P. Golden Hawkweed with hairy leaves.

The two first sorts should be sown in autumn, in fresh undunged earth, and should be thinned to eight inches plant from plant; they will flower well the succeeding spring, and perfect their seed.

The last sort is an abiding plant, and by parting their roots, may be propagated and planted in fresh undunged, or rather a stony earth, and in any situation.

166. *Hesperis montana pallida odoratissima*, C. B. P. *Pale Mountain Dame's Violet*, with a very odoriferous smell.

This plant should be sown in *March*, and the following year may be transplanted into a place which has been dunged with tanners bark, which will make the plants produce a great quantity of large flowers: Although these plants are biennial, when you suffer them to seed, yet, by pulling off their flowers before they decay, and cutting them down, which makes their roots produce new heads, they will flower four or five years, without decaying.

167. *Hyecdon orientale, latiore folio, flore magno*, Tournef. Corrol. *Eastern Horn wild Cummin*, with a broad leaf and a large flower. I would advise the seed of this plant to be sown, (where they are to remain, for they do not agree with transplanting) in autumn, soon after they are ripe; for if sown in spring, they seldom vegetate the first year; but if sown in *August*, they will soon vegetate, and both flower and perfect their seed. They love a fresh, light and undunged earth.

168. *Hypericum vulgare flore luteo*, C. P. B. *Common St. John's Wort*, is a plant common in *England*; it should be sown in autumn, it loves a fresh undunged soil, and will grow in almost any situation.

169. *Horminum comâ purpureâ violaceâ*. J. B. *Clary*, with purple *Violet Tops*.

170. A species of the *Horminum*, I never heard of, nor do I know it by this name.

The first plant should be sown in *March*, upon a border of undunged fresh earth, kept clear of weeds, and to stand no nearer than eight inches distance plant from plant, and in *March* transplant them where they are to remain, allowing two feet plant from plant.

171. *Hyssopus flore rubro*, C. B. P. *Red flowering Hyssop*.

This plant should be sown in a fresh undunged sandy soil, where it thrives better than in rich moist earth, and if sown too thick, should be thinned.

172. *Lathyrus angustifolius flore rubro*, J. B. *Narrow-leaved red-flowering Chickling Vetch*, commonly called *Scarlet Lupine*.

173. *Lathyrus angustifolius Americanus variegatus*, C. B. P. Narrow-leaved Chickling Vetch of America, with a variegated flower.

174. *Lathyrus Bæticus flore luteo*, Park. Theut. plant. Spanish Chickling Vetch with a yellow flower.

175. *Lathyrus angustifolius, flore ex albo et rubro variegato, odorato*, J. B. Commonly called the Painted Lady Pea. This is a seminal variety of the 176th, but not so sweet scented.

176. *Lathyrus distoplatyphyllos hirsutus, mollis, magno et peramæno flore odoratissimo*, Hort. Cathart. Sweet scented Pea; of this kind of Pea there is both the purple and white flowered.

177. *Lathyrus supinus*. Creeping red Chickling Vetch.

178. *Lathyrus Tingitanus siliquis orbi flore amplo ruberrimo*, Morison. Hisloir. Ting. Tangier Chickling Vetch; with a large deep red flower.

179. *Lathyrus arvensis repens tuberosa radice*, C. B. Creeping wild Chickling Vetch, with a Tuberosa root.

All these plants may be sown in autumn, or in the spring, though I prefer autumnal sowing by a warm hedge or wall rather than in March; for those sown in August will be four times larger than those sown in the spring. Sown in patches in the garden they look well.

The last sort may be also then sown, and may afterwards be propagated by parting its Tuberosa roots; in February I have eaten the roots roasted like potatoes, which please some palates.

180. *Lavendula folio dissecto*, C. B. Cut-leaved Lavender.

This plant should be sown in March, in a fresh soil, and afterwards transplanted into pots, to adorn rooms, where it will flower and seed well.

181. *Leucanthemum tanacetifolio, flore majore*, Boerb. Ind. Ox-eye Daizy, with a Tanzey Leaf and a large flower.

These plants should be sown in beds of light fresh earth, and afterwards transplanted into a nursery-bed, at eight inches distance, where they may remain until July, then plant them into the garden borders, and in the following

following spring they will flower. There is another sort, with a variegated leaf.

182. *Lychnis segetum rubra, foliis persiliatis*, G. B. P. Red Corn Champion, with thorough wax-leaves.

183. *Lychnis hirsuta minor, flore variegato*, Tourn. Small bairy Champion, with a variegated flower, commonly named Dwarf *Lychnis*.

184. *Lychnis coronaria sativa Dioscoridis flore albo*, C. B. P. Single white Rose Champion. The painted Lady Rose Champion, which is the prettiest flower of all the Champions, is cultivated in the same manner with the others, but it requires a good undunged fresh soil, and to be planted in pots, to shelter it from the severities of the weather in winter.

185. *Lychnis hirsuta, flore incarnato, major*, C. P. B. Pale *Lychnis* of Constantinople.

186. *Lychnis Hispanica Valerianæ rubræ folio, flore purpurascens*, Tournef. Spanish Champion, with a red valerian leaf, and a purple flower.

187. *Lychnis foliis scabiosæ altissimæ annuæ, quæ foliis Agrimonie nonnihil similia sunt*, H. L. *Lychnis*, with scabious leaves.

188. *Lychnis segetum meridionalium, annua, hirsuta floribus rubris uno versu dispositis*, Morison. Hist. Corn annual bairy Champion, with flowers set on one side of the stalk.

189. *Lychnis coronaria Dioscoridis sativa, flore rubro, veluti flammeo fulgens*, C. B. P. Rose Champion, with a flaming red coloured flower.

190. *Lychnis seu saponaria, flore pleno*, Tourn. generally named Double Soapwort.

All these (except the last) should be sown in March on beds of light fresh earth, and from thence transplanted into nursery beds of the same earth, at ten inches distance, where they should remain till spring, when they must be transplanted into the borders of the pleasure garden. The last sort bears seed, and being a flower of no great beauty, is planted in a place by itself, being a great runner, therefore I always used to plant it in pots for rooms, where, with other flowers it made a very good appearance.

191. Li-

191. *Linaria annua angustifolia, flosculis albis longius caudatis*, Triumph. Narrow leaved annual Toad-flax, with small white flowers, having long spurs.

192. *Linaria annua angustifolia, flore ex alba et luteo variegato majore*, Morisf. Hist. Plant. Narrow leaved annual Toad-flax, with a large variegated white and yellow flower.

193. *Linaria latifolia tryphylla, flore purpureo magno rictu aureo*, Hist. R. H. Broad three leaved Toad-flax, with a purple flower and a golden standard.

194. *Linaria quadrifolia lutea*, C. B. P. Four leaved yellow Toad-flax.

195. *Linaria perennis purpurea major odorata*, C. B. P. Great purple sweet smelling Perennial Toad-flax.

All these may be either sown in light fresh earth in autumn, (which I would rather advise) or in the spring, and be kept clear from weeds; and the Perennial kind may, from the seed-bed, be transplanted into the middle of large borders in the flower-garden, where they will make a fine appearance, as they continue long in bloom. It will be proper that this work be done in April.

196. *Linum sativum latifolium Africanum fructu majore* Tournef. Broad leaved African Flax, with a large fruit.

197. *Linum perenne majus cæruleum, capitulo majore*, Morisf. Hist. Greater Perennial blue Flax, with a larger head.

198. *Linum umbilicatum*, is the *Omphalodes linifolia*, Tourn. called Venus Navel Wort.

The two first sorts should be sown in the spring, upon a bed of light earth, to be kept clear from weeds, where they will flower well; the last sort I always chose to sow in autumn, when they will flower early, and ripen their seed much better, than those sown in spring.

199. *Lysimachia orientalis angustifolia, flore purpureo*, Tourn. Corr. Narrow leaved Willow-herb, with a purple flower.

The seeds of this plant should be always sown in autumn, (for if they are kept till the spring, they do not

not grow) on a warm border of light fresh earth, and in the spring the plants may be removed into a place where they may have the morning sun, and where they are to flower, for they are not fond of being often transplanted.

200. *Lotus ruber siliqua angulosa, foliis variegatis*, Boerb. Ind. Red square podded Birdsfoot, Trefoil, with variegated leaves.

201. *Lotus angustifolius, flore luteo purpurascens, ex insula Sancti Jacobi, Hort. Amst.* Narrow leaved Birdsfoot Trefoil, with a yellow purplish flower from St. James's Island.

The first of those plants is a seminal variety, but has this excellent qualification, that these seedlings always retain their variegation, which few variegated plants do.

The second sort is a tender plant, and both of them require to be raised upon a moderate hot-bed in March, such as has used to raise early Cucumbers. When the plants are two inches high, they should be transplanted into pots, and these pots sunk into a moderate hot-bed, which will assist the plants the readier to strike root: As they are impatient of cold, they must have a warm green-house in winter, and when they are in the hot-bed, they must have as much air as possible, otherwise they will be drawn too much: In May their pots may be removed for fourteen days into the shade, and afterwards placed in a warm situation, free from winds, where they will flower well and ripen their seeds; they delight in much water in the summer season, but in winter must have it sparingly, lest you rot their tender roots.

202. *Leucoium minus et annuum, Dodon.* Lesser annual Stock Gilliflower.

203. This I suppose to be a seminal variety of the former, though I must own I never saw the plant.

I sowed the seeds of the first plants at two seasons, in March and in May, upon a light bed of fresh earth, and obtained many double from seed. The seedlings at both seasons flowered in ten weeks time after their being

388 The GARDENER'S NEW DIRECTOR.

being sown, which has acquired it the name of the *Ten Weeks Stock-Gilliflower*: From the double I took cuttings in July and September, which being planted in pots, in fresh, light, undunged earth, out-lived the winter under the shelter of a hot-bed frame, or in an airy glass-case, with *Ficoides*, &c. and flowered in April and May.

204. *Leucoium incanum majus multiplex, flore albo*, Tourn. Great hoary Stock Gilliflower, with a double white flower.

205. *Leucoium majus incanum multiplex flore purpureo*, C. B. P. Great hoary Stock Gilliflower, with a double purple flower.

206. *Leucoium flore pleno, ex albo et purpureo variegato*, Hort. Eltb. Double Stock Gilliflower, with a double purple and white variegated flower.

207. *Leucoium majus incanum flore roseo pleno*, Boerb. Ind. Alt. Great double Rose-coloured Stock Gilliflower.

208. A seminal variety of the former plant.

209. *Leucoium majus incanum, flore coccineo*, Moris. Hist. The great hoary Stock Gilliflower, with a crimson flower, named the *Brumpton Stock*.

210. A seminal variegation of the former plant.

211. *Leucoium album odoratissimum, folio viridi glabro*, C. B. P. Great white Wall-flower.

212. *Leucoium majus, flore intus luteo, extus ferrugineo*, called the *Raven Wall-flower*.

213. *Leucoium luteum vulgare*. Common yellow Wall-flower, C. B. P.

214. *Leucoium purpureum*, C. B. P. Purple early Stock.

215. *Leucoium rubrum*, C. B. P. Early red Stock.

From the seeds of all those plants, I have raised many fine double sorts of extraordinary beauty. Their culture I managed in a particular manner, whereby I lost none of them by the severity of our winter; and which I would venture to recommend to the curious, as numbers perish in winter for want of proper management. They are all *Biennials*, except the *Ten Weeks Stock*, therefore, instead of sowing them in March, or April, I always sowed them in the middle

middle of *July*, when it was about full moon. I further observed, that what seed I gathered myself, and which I took only from the single flowers that had seven, eight, or ten petals or flower leaves; if I preserved those seeds in their pods for one year, and sowed them in the second, I had more double flowers than if I had sown them the first year: My reason for sowing them in *July*, was, that, to sow them early, I must expose them to the winter's frost, which from many repeated experiments, destroyed those flowers, and disappointed all my expectations. Therefore, as soon as they had seven or eight leaves, which was about the tenth of *September*, I transplanted them into boxes and large pots as thick as they could conveniently be planted; and upon the approach of the winter storms, I moved them into the pine apple summer beds, or into hot-bed frames, covering the glasses in great frosts with mats, to preserve these seedlings, which I planted in a sandy, light, fresh, undunged soil; I also observed to give them as much air in mild weather as was possible: and towards the middle of *April*, having first inured them to the open air, I transplanted them into nursery-beds of the same soil, at eight inches asunder, plant from plant: Of the double I planted many in pots, and took cuttings off them from their branches, planting them in a shady situation, which in five weeks, I transplanted into pots, or into the borders of the flower-garden: Those in pots I have kept many years in bloom and vigour, renewing my cuttings every year to preserve them, observing always to take those cuttings from the branches of the plants which bore no flowers, and giving them some shelter in winter. The single I threw out; but the semi-double, or those plants, whose flowers had six, seven, eight, or more flower leaves, I suffered to seed, but never sowed seed of my own gathering more than once, choosing rather to sow the seed which came from abroad, as they are apt to degenerate: I used the same method with all the wall-flowers, which succeeded to my best expectations, by which means I had always a fine succession of those beauties, which, when in blossom, much adorned, and filled my room, court-yard,

green-house, and wherever I chose to dispose of them, with their fragrantcy.

216. *Lupinus sativus flore albo*, C. B. P. Garden Lupine, with a white flower.

217. *Lupinus sylvestris flore luteo odorato*, C. B. P. The Common Yellow Lupine.

218. *Lupinus cæruleus angustifolius elatior Raii Hist.* Narrow-leaved blue Lupine.

219. *Lupinus peregrinus major flore incarnato*, Hort. Lugd. Great Foreign Lupine, with a flesh coloured flower, commonly called the Rose Lupine.

220. *Lupinus silvestris flore purpureo, semine rotundo, variegato*, J. B. called the Lesser blue Lupine.

221. *Lupinus peregrinus major villosus cæruleus*. Great blue Lupine.

222. *Lupinus minor perennis Virginianus repens*, Moris. Hist. Smaller blue-creeping Virginian Lupine, which is Perennial.

All these sorts of *Lupines* are *Annuals* (excepting the last;) they should be sown in a dry soil, and in patches of the borders of the flower garden; the tallest sorts should be tied up to proper supporters, in case of winds, whereby their great flower stalks, and heavy heads of seed vessels, may not be broke: They continue a long time in flower in summer and autumn; but if you design to have good seed, plant them early in a warm border, and tie up their stalks to support them; and as soon as their seed vessels appear on the first stem, cut off all lateral branches, by which means these plants, having but one stem of pods to maintain, will ripen their seed sooner in autumn, than those which are always flowering and endeavouring to produce seed, which they cannot do, by the number of their lateral branches of flowers that are incessantly coming out; they do not prosper if transplanted.

The last sort is a *Perennial* plant, which will prosper very well, and bear many flowers, if it is allowed to remain in the place where it was first sown; it agrees best with a dry light soil, where it will annually produce fine spikes of blue flowers, but it does not perfect its seed in this country.

223. *Marjorana Chetica origani folio villosa, satureii odore, majoribus corymbis albis*. Hairy Candia Marjoram, with

with an origany leaf, and large round tufted white heads.

This is a plant which grows naturally in the *Levant*, and in great numbers about *Smyrna*, from whence I had a quantity of seed, but never produced seed in this country; it is the best of all the *Marjorams*; for if it is required, you may have it at any time in winter, when you plant it in pots in a light fresh soil, the better to protect it from the winter; it must be sheltered in the most airy part of our green-house in winter, so as it may not be drawn too much, which is as prejudicial to it, as if it had not any shelter; and it must have new earth in *May*, little water in winter, but plenty in summer.

224. *Malva Bœtica flore albo*,

225. Do. *Flore roseo*,

226. Do. *Flore incarnato*,

227. Do. *Flore rubro*,

Are all feminal varieties of the *Candy Mallow*; they are all *Annuals*, and should be sown in *March* on a light fresh soil, and when they are two inches high, may be transplanted into the places where they are to remain: If they are sown in *July*, they will stand the winter colds, will flower larger, and seed better than those sown in spring.

And here I think it necessary to speak of the *Lavatera's*, although they come nearer to the *Alcea's*; but as I had no opportunity of treating of them there, I do it here. They are all of them *Annuals*, and I would advise them to be sown in pots in autumn, and sheltered in winter; and by the middle of *May*, they should be taken out of the pots, and planted in the open ground, where they will flower early and strong, and ripen their seed much better than those which are sown in the spring. You may sow them both in autumn and in *March*, for a succession of flowers. The most of the *Lavatera's* are botanically named, *Lavatera Africana*, *flore variegato*, or *African Lavatera*, with a striped flower.

228. *Malva orientalis erectior, flore magno save-rubente*, *Tourn. Corr.* Upright Eastern Mallow, with a large red flower.

This is the prettiest of all the *Mallows*, making a great show with its fine red flowers in the middle of long bor-

ders with other flowers; it requires the same culture with the other sorts.

229. *Malva Sinensis erecta, flosculis albis minimis.* Upright Chinese Mallow, with small white flowers.

230. *Malva foliis crispis, C. B. P.* the curled leaved Mallow.

231. *Malva folio variegato, C. B. P.* the variegated leaved Mallow.

These are *Annuals*, and require the same culture as the other *Mallows*.

232. *Matricaria foliis elegantissimè crispis, et petalis florum fistulosis, Tournef.* Feverfew with elegant curled leaves, and the flower petals fistulous.

233. *Matricaria flore pleno, C. B. P.* Double flowered Feverfew.

The seed of these plants should be sown in *March*, and should in *May* following be transplanted into borders, with balls of earth about them; they may be also increased, by parting their roots in the spring; but then it is not proper to allow them to seed, for that weakens their roots; therefore, when the plants have done flowering, those you intend to increase by off-sets, should be cut down.

234, 235, 236, 237, 238, 239, 240, 241, are all seminal varieties of the *Medica Cochleata*, or *Snail Trefoil*. For the odd appearance of which plants, no good garden should want them; and as they require little culture, there is no trouble except in keeping them clear from the weeds about them: They should be sown in a warm dry sandy soil in *April*, and about ten days after they are sown, must have water given them to hasten their germinating; if they are sown in wet ground, it will make their seed burst and rot; they should be thinned, if sown too thick, to the distance of a foot, plant from plant, as they creep much, and by all means be kept clear from weeds; they flower in *June* and *July*, and will soon after perfect their seed, which has an odd appearance, and must be laid in a dry place until the spring.

242. *Melilotus Italica* is the *Melilotus Italica folliculis rotundis, C. B. P.* Italian Melilot, with round small leaves.

243. Do.

243. *Melilotus flore violaceo* is the *Melilotus major odorato violacea*, Morif. Hist. Commonly called Sweet Trefoil.

244. Do. *Minor* is the *Melilotus corniculis reflexis repens vel minor*, C. B. P. Smaller creeping Melilot.

These plants are all *Annuals*, and should be sown on a warm border in *August*, which will make them flower earlier in the year, and stronger than those plants which are sown in the spring; but as their seed arrives in winter, in *Britain*, from abroad, it will be proper to sow them early in the spring in a good soil, and on a moderate hot-bed; they should be thinned, if sown too thick; but they should not be transplanted, whereby their flowering and seedling would be postponed for some weeks; but allowing these plants to remain where they are sown, they will flower soon, and perfect their seed early; when the seed falls on the ground, run it over with a small rake, to cover it, and the seed will soon come up if it is rainy weather; they will endure the winter, and flower and seed early: This method I used for all such plants as required rather to be sown in autumn than in the spring.

Minionette, or *Magnion d'Egypte*, see *Reseda Egyptica*, &c. No. 310.

245. *Myagrum Monospermum latifolium*, C. B. P. Broad leaved one Grain Gold of Pleasure.

This is an *Annual* plant; to be sown in *August*; and when the plants are once sown, they will sow themselves, if you allow their seed to drop; spring-sowing of the seed does not succeed so well, they often failing to germinate at that season; keep the plants, when they appear, clear from weeds, and at a foot distance, plant from plant, which is all the culture they require.

246 and 247, are plants, which, by these names in the *Dutch* catalogues, I know not; but this I know, that they are *Millets*; all which are *Annuals*, and require to be sown in *April* on a light sandy warm soil, and should be kept clear from weeds, as soon as they appear above ground, which is all the culture they require.—Their seed are good for making puddings.

248, 249, 250 and 251, are all feminal varieties of the *Falapa*, but not of the *Falapa officinarum*, or *Falapa cathartica*, that plant being now found by the late ingenious

nious Doctor *William Houston*, to be a species of the *Convolutus*. But to return to the culture of this plant, called in the *Dutch* catalogues, *Mirabilis Peruviana*, I used the following method, which by experience I found to exceed all others: Having procured good seed of a variety, I sowed them in *April* upon a moderate hot-bed; and when they were four inches high, I transplanted some of them into pots in a light, rich, sandy soil, and some of them into a warm border, inuring those in pots by degrees to the open air in *June*: and those which I planted in beds upon a very warm border, I always tied their branches up to reeds, to prevent the winds from dashing, waving, or breaking them: By this method they will flower late in the year; but the first year's flowers are not much to be regarded. As soon as the frost has pinched their stalks and flowers, take their roots carefully out of the pots, and borders, keep them all the winter among dry sand, in a place where no manner of frost can get at them, and the succeeding *March* plant them into pots, which must be sunk into a moderate hot bed of tan bark, observing in good weather to give them air, that they may not be too much drawn, which would spoil their blossoms; by *June* you may take them from the hot bed, setting them for ten days in the green-house, or for want of one, in a shaded place, but not under the dropping of trees. When you take them into the shade, water those you intend to keep in pots, giving new earth to them as far in the pots as you can, without touching their main or top roots; those you intend to plant in borders, should have much water the evening before you transplant them, that the whole ball of earth may come out of the pot with them; then transplant them into pits made in the borders, and fill the pits up with the same earth as in the pots: They are one of the *Noctiflorous Plants*; for as soon as the sun's rays are gone off them, they expand their blossoms, and shut them again when his rays shine upon the plants; the seeds must be carefully looked to every day when they begin to ripen, they being then very apt to drop; and where they fall, they spring in autumn, and are thereby destroyed in winter. It is best to save the seed of the variegated kind, they seldom degenerating from their
variega-

variegation. The plants, by this management, will rise to be four feet high, and daily produce new flowers, until the frost pinches them; and notwithstanding their roots will continue some years, I would chuse to sow their seed annually.

252. *Moldavia Betonica folio flore albo* Tournef. *Turkey Balm*, with a betony leaf and a white flower.

253. *Moldavia orientalis salicis folio, flore parvo cæruleo*, Tourn. Corr. *Eastern Moldavia*, with willow leaves and a small blue flower.

254. *Moldavia orientalis Betonica folio flore magno violaceo*, Tourn. Corr. *Eastern Moldavia*, with a betony leaf and a large violet flower.

The first and second sorts are *Annuals*, and sometimes *Biennials*, and should be sown in *March* on a border, in a very warm situation of fresh light earth; after they come up, they may be transplanted into the borders of the flower garden: They flower in *June* and *July*, and ripen their seed in *August*; some of their seed may then be sown in a warm situation, where they will endure the cold of our winters very well; by potting their seedlings, they will be out of danger.

255. *Nardus Babemica flore albo*, the white flowered *Bohemian Spikenard*.

256. *Nardus Austriaca flore cæruleo*, blue *Austrian Spikenard*. Both those plants grow in *Germany*, they should be sown in autumn, or in the spring, on a light fresh soil, and they may be increased by parting their roots in *March*: There is no great beauty in them.

257. *Nardus orientalis flore variegato*, the most beautiful of them all, is the variegated flowered *Eastern Spikenard*; it requires the same culture.

258, 259, 260 and 261, are all seminal varieties of the *Nasturtium Indicum* or *Acriviola*. They are all annual plants, and should be sown in *March* in a good garden soil three feet distance, plant from plant, putting two seeds in every pit when you sow them; they are great creepers, and will, in good fresh earth, continue in bloom from *June* until the frost kills them; and may be sheltered in winter, by planting cuttings of them in summer in pots, and these cuttings will flower in winter. Their seed when half ripe makes a good pickle.

262. *Necanthemum*; the name given this plant is such as I have not heard of before in any botanical author; I do not know to what genius to apply this *beteroclite* name, of which I know no meaning; and it was to correct these blunders in the *Dutch* catalogues, which induced me to undertake this work, however unsuccessful I may have been; for when I sowed the seed of this odd named plant for two years, and once more in a hot bed, it did not come up, so I know nothing of the plant either by its name or appearance.

263. *Nicotiana major latifolia*, C. B. P. Greater broad leaved Tobacco.

264. *Nicotiana major rotundifolia*, C. B. P. Greater round leaved Tobacco. Their culture is in *March*, to prepare a hot-bed of dung, sow them upon it, as soon as you perceive the violent heat of it is over; and when the plants are two or three inches high, transplant them into another moderate hot-bed, where let them continue until their leaves are meeting, at which time plant them in a heap of your richest compost, or such earth as is prepared my melons, and cucumbers, three feet, row from row, and two feet, plant from plant, lifting them with large balls of earth; while they were in the hot-bed, I inured them to the open air, and gave them plenty of water when they required it: In *August* they prepared to flower, at which time cut off their tops that their leaves might be better nourished; and by the end of that month cut them quite down for use, otherwise their leaves would have failed and the crop been lost.

265. *Nigella flore minore albo pleno*, C. B. P. Fennel Flower, with a small white double flower.

266. *Nigella flore majore caeruleo pleno*, C. B. P. Double blue Fennel Flower, or Devil in a Bush.

These plants should be sown in patches, where they are to remain in the borders of the flower-garden in *March*, and watered and kept clear from weeds, which is all the culture they require.

267. *Ocbrus folio integro capreolos emittante, semine pullo*, C. B. P. Winged Pea with an entire leaf, sending forth tendrils and a brown seed.

This plant should be sown in drills, very thin in the rows, three feet row from row, and should be hoed up as

as pease, and kept clear from weeds, and when they spire to flower, should be supported up by sticks, whereby they will ripen their seed better than if they lay on the ground.

268. *Ornithopodium scorpioides*, *siliqua compressa*, *Tournef.* Caterpillar Birds-foot, with a flat Pod.

These plants should be sown in patches in *March*, on the borders of the flower-garden, and are fit companions for the *Snail*, and *Caterpillar* plants, as they require the same culture.

From the 269 to the 278, are the seminal varieties of the *Papaver hortense*, or *Garden Poppy*; and from 278, to the 285, are the seminal varieties of *Corn-poppies*, or the *Papaver erraticum*.

These should be sown in *March* or *April* in patches, or among the borders of the pleasure-garden, and should be thinned, the good flowers kept for seed, and then pulled up with their roots, otherwise they breed vermin.

285. *Pelecinus vulgaris*, *Inst. Raii Herb.* Common *Pelecinus*.

This plant should be sown early in *April*, in a light fresh earth, cleared from weeds, and if too thick, should be thinned; when they seed, their pods make a pretty appearance, being serrated on both sides. To have them seed well, I would have them sown on a moderate hot-bed in *March*.

286. *Perficaria orientalis*, *nicotianæ folio*, *calice florum purpureo*, *Tournef. Corr.* Eastern *Arsesmart* with a tobacco leaf and a purple flower cup.

These plants should be sown in autumn, when their seed is ripe; transplant them in the spring in the borders of large gardens, allowing them much space; for no plant will thrive under the drop of their great leaves.

287. *Phaseolus flore coccineo*, *Morif. Hist.* Red-flowered *Kidney Bean*.

288, 289, and 290, are all seminal varieties of this plant; they should be planted in *April*, on a dry soil in dry weather, and keeping them clear from weeds is all the culture they require; the first sort I planted in large tubs, and putting a long wooden stake in the middle of the earth, and from that tying as many strong pack-threads to the inside of the tub, as I had planted beans, their

their tendrils ran up upon the threads, and when they were in flower they made a fine show, and are very great bearers, and are strongly recommended for family use.

291. *Lycopersicon Galeni*, Ang. *Yellow Love Apple*.

292. *Lycopersicon fructu cerasi luteo*, Tourn. *Love Apple*, with a yellow cherry-shaped fruit.

293. *Lycopersicon Galeni*, fructu rubro, Boerb. Ind. *Love Apple*, with a red fruit.

294. *Lycopersicon fructu cerasi rubro*, Tourn. *Love Apple*, or *Pomum amoris*, with a red cherry-shaped fruit.

Those plants should be sown on a moderate hot-bed in *March*, and when they are two inches high, should be transplanted into another moderate hot-bed, shading them until they take new root; and I took care to give them much air in mild weather: In *June* they may be transplanted into pots of good garden mould, shading them until they take fresh root, when, giving much water, they will flower and fruit admirably. Some people plant them from the second hot-bed into the open ground, upon a moist rich soil, where they will thrive well, provided their branches are tied up, which would otherways break by the weight of their fruits.

295. *Ptarmica flore albo pleno*, Clus. Hist. *White double flowered Sneezewort*.

296. *Ptarmica flore purpureo pleno*, Boerb. Ind. *Purple double Sneezewort*.

Those plants make a fine show when they are planted in pots, where their roots are confined, for in good ground their roots spread too much; they do well also in gravelly borders, where they will make a pretty show: By cramping their roots they flower best.

297. *Reseda folio calcitrapæ, flore albo*, Moris. Hist. Blas. *Bastard Rocket*, with a star thistle leaf, and a white flower.

Reseda Ægyptiaca minor floribus odoratissimis, or *Yellow flowering Egyptian Bastard Rocket*; it is called *Mignon d'Ægypte*, or *Minionette*. For its culture, see page 310.

The first mentioned *Reseda*'s should be sown in *March*, on a bed of fresh undunged earth, keeping them clear from weeds, thinning them, if sown too thick, to six inches plant from plant.

298. *Rici-*

298. *Ricinus Americanus*, caule virescente, H. R. P. The greater *Palma Christi*, with green stalks. This plant should be sown in *March* upon a moderate hot-bed, and when they are two inches high, may be transplanted, with a good ball of earth, into pots, in *April* into another hot-bed, taking care to shade them, until they are well rooted; as they grow very quickly, they will require soon two penny or three penny pots; for the purpose of raising them, force up the shell which covers the hole at the bottom of the pot with a small stick, when they will come up, earth and all; then plant them into the big pot in fresh light earth, shading and watering them until you perceive they grow again, giving them in good weather as much air as you can, by which means they will be fit to be set out into the open air with *Myrtles*, *Oranges*, &c. about the middle of *June*, which should be in a warm place, well sheltered from winds, as their large leaves (which make a good appearance) would be prejudicial to them: In *October* remove them into the green-house, with *Oranges*, &c. where they will flower and perfect their seed. When they are set abroad in the common air, I tied their stems to small green wires, to preserve them from the injuries of the weather, whereby I have had them eight feet high in stem by the second year of their growth.

299. *Scabiosa altissima annua*, foliis agrimonice nonnihil similibus, H. L. the tallest *Annual Scabious*, with leaves like *Agrimony*.

The 300, 301, 302, 303, are all seminal variegations of the same plant; those sorts I always (contrary to the practice of many) chose to sow at the end of *July*, so that they might be transplanted before winter into the borders of the pleasure-garden, when they will be strong plants to endure the winter severities, and flower much better the succeeding year than those which are sown and flower the same year; and as it is a dry season commonly when they are sown, I sowed them on a shady and moist soil, to hasten their vegetation, otherwise they will often fail. The sorts here set down in the *Dutch catalogues* are what I used, especially the *Scabiosa prolifera*, or *Childing Scabious*, because of its very uncommon appear.

appearance, and the strong musky scent they emit, for which reason they are called *Musk Scabious*.

304. *Scandix Cretica major*, C. B. P. *Great Shepherd's Needle of Crete*. Their plants should be sown in *August*, where they are to remain; and keeping them clear from weeds is all the culture they require.

305. *Scorpioides buppleuri folio, corniculis asperis in se convolutis*, Moris. *Hist. Prickly Caterpillar*.

306. *Scorpioides buppleuri foliis, siliquis levibus*, Park. *Theat. Bot. Smooth Podded Caterpillar*.

307. *Scorpioides siliqua crassa, Boelii Germ. Emac. Thick Podded Caterpillar*.

These plants should be sown in beds or patches of the borders of a flower-garden, where they are to remain, as they do not agree with transplanting; and when they come up, they should be thinned, if too thick, to one foot, plant from plant, and be kept carefully and constantly clear from weeds, which is all the culture they require.

308. *Scalymus Chrysanthemus annuus*, R. H. Par. *Annual Golden Thistle*.

309. Is a seminal variegation of the former plant.

These plants should be sown in *March*, where they are to remain, and on a fresh soil kept clear from weeds, and thinned to two feet, plant from plant.

310. *Sesamoides parva Matthioli*; *Matthioli's Bastard Sesamum*, or *Oily Grain*.

These plants should be sown and forced in hot-beds, as was directed for the *Amaranths*, otherwise they will not perfect their seed in this country.

311. *Campanula arvensis erecta, flore albo*, Inst. R. *Herb. Upright Venus' Looking-glass*, with a white flower.

312. *Campanula arvensis erecta, flore caeruleo*, Tourn. *Upright Venus' Looking-glass*, with blue flowers.

Those plants I sowed at three different times in the year, in *March* and in *April*, on a bed of light fresh earth, to flower in that season, keeping them clear from weeds, and giving them water in very dry weather; as also, about the middle of *August*, to flower early the next spring, as they endure the severities of the winter very well, by which means their flowers will be larger, and their seed better.

313. *Stachys agria, folio majore laciniato, Greater Base Hore-bound*, with deep-cut leaves. I chose to sow the seed of this plant in pots in June, and to keep them in winter in the green-house, as the frost is very hurtful to them. In the spring following, when I transplanted them into the open ground, I supported their stalks; when they blossomed and seeded very well.

314. *Tblaspidium annuum, flore pallide luteo, Inst. R. H. Annual Bastard Mitbricate Mustard*, with a pale yellow flower.

This plant should be sown in August, in a poor, dry, warm situation, to stand the winter, whereby they flower early and perfect their seed, which, if allowed to fall on the ground, will produce a plentiful crop of plants next season: They must be kept clear from weeds. You may also sow some of them in pots in case of a very severe winter, whereby they may be sheltered under a frame, or in the glass-case.

315. *Tblaspi Creticum, quibusdam flore rubente et albo, J. B. Candy Mitbricate Mustard*, with a reddish and a white flower.

316. *Tblaspi Alpinum, folio rotundo carnosso, flore purpurascete, Inst. R. Herb. Mitbricate Mustard of the Alps*, with a round fleshy leaf, and a purplish flower.

317. Do. *Flore violaceo, Violet-flowered Alpine Mustard.*

318. *Tblaspi Lusitanicum umbellatum, folio gramineo, flore alba purpurascete, Inst. R. Herb. Portugal Mitbricate Mustard*, with a flower in an umble, and of a white and purple colour.

319. *Tblaspi parvum saxatile, floribus aureis, C. B. P. Small Rock Mitbricate Mustard*, with a gold-coloured flower.

320. *Tblaspi saxatile orientale, floribus aurantii coloris, foliis poligulæ, petalis florum æqualibus, Tourn. Cor. Eastern Rock Mitbricate Mustard*, with Milkwort leaves, and an orange-coloured flower, whose petals are of an equal length.

321. *Tblaspi Virginianum, foliis Iberidis amplioribus serratis, odoratis, Inst. R. Herb. Virginian Mitbricate Mustard*, with leaves like the *Sciatica* Cress, serrated and well scented.

All these plants are *Annuals*, and their seed should be sown in *March* upon a dry soil; keeping them clear from weeds, and watering them in dry weather in summer, is the best culture you can give them.

322. *Tordilium Narbonense minimum*, *Inst. R. H.* Small *Narbonne Hartwort*.

323. *Tordilium minus limbo granulato Syriacum*, *Morif.* Plant. *Umbellif.* Small *Hartwort* of *Syria*, with a granulated border.

These are *Annuals*, which should be sown in autumn, and be kept clear from weeds, which is all the culture they require: You may sow the last sort in pots to be sheltered in winter.

324. *Trifolium lagopoides hirsutum angustifolium Hispanicum*, *flore ruberrimo*, *Morif. Hist.* Hairy narrow leaved *Hares-foot Spanish Trefoil*, with a very red flower.

325. *Trifolium orientale altissimum caule fistuloso, flore albo*, *Tourn. Corr.* the *Tallest Eastern Trefoil*, with a hollow stalk and a white flower.

The first sort makes a fine appearance with its pretty scarlet flowers; it is an *Annual*, and should be sown in *March*, and kept clear from weeds, or they may be sown also in autumn, in pots for winter shelter, and for early blossoming and seeding.

The other sort may also be sown in autumn, and makes a very good appearance, and should be cleared from all weeds: Both these sorts I had in great perfection by autumnal sowings.

326. *Maize*, or *Indian Wheat*. There are many seminal varieties of this, which differ only in the colour of the grain. These are generally sown upon a hot-bed, and in *June* are planted out into a rich border, where they are to remain and ripen their seed, which come to little without this method of forcing them; you must keep them clear from weeds, and give them water in dry weather, which is all the culture they require.

327. *Polemonium vulgare caeruleum*, *Tournef.* *Greek Valerian*, with a blue flower.

328. *Polemonium vulgare album*, *Tournef.* *Greek Valerian*, with a white flower.

329. *Polemonium vulgare flore variegato*, *Tourn.* *Greek Valerian*, with a variegated flower.

The

The seed of these plants should be sown in *May* in a good garden mould, they will stand the severities of our winters very well, and in the succeeding *March*, should be transplanted into the borders of the flower-garden, where they will make a very pleasing show; the first sort flowers early.

330. *Valerianella Cretica fructu vesicario*, Tourn. Corol. Candy Corn Salad, with a bladdered fruit.

331. *Valerianella semine in umbello crescente, hirsuta majore*, Moris. Hist. Plant. umbellif. Corn Salad, with a large hairy umbellicated seed.

The seed of these plants should be sown in autumn, as they are hardy, and be kept clear of weeds, is all the culture they require, for they will grow in almost any situation.

332. *Verbascum Alpinum perenne nigrum, flore albo, stamineis purpureis*, H. R. Paris.

333. *Verbascum fœmineum, flore luteo magno*, C. B. P. Female Mullein, with a large yellow flower.

The seed of these plants should be sown in autumn, as they are very hardy, and in the subsequent *March* may be planted out, where they are to remain; but they do not agree with being often transplanted.

334, 335, 336, 337 and 338, are all seminal varieties of the *Vicia* or *Vetch*, which in all respects agree with the culture given to garden pease.

339. *Viola tricolor bortenensis repens*, C. B. P. *Pansie's Heart's Ease*, or *Three-coloured Violet*. Although this plant is said to be annual, yet, when it is allowed to scatter its seed, it will continue itself; but they must be kept within bounds, otherwise they will spread too much. There is a great variety of them. Observe to take off-sets from the best sorts of them: For, although they do not keep to the colours of the mother plant, they are improved by this management, as I have often experienced.

340. *Vulneraria pentapbyllos*, Inst. R. H. *Five-leaved Woundwort*. The seed of these plants should be sown in *March*, in fresh light earth, and in that place where they are to stand, must be kept clear from weeds, and should be thinned, if they are too thick sown, which is all the culture they require.

341. Ur-

341. *Urtica Romana*, or *Roman Nettle*. This plant should be sown in *March*, in a hard gravelly soil, and will prosper in any situation.

Culture of the Plants which flower the second Year after they are sown, called Biennials.

342. *Acarna Theophrasti* & *Plinii*, the true name of the plant, is, *Acanthus sativus vulgaris*, seu *mollis Virgillii*, C. B. the *Smooth-leaved Garden Bearbreach*, mentioned by *Pliny* and *Theophrastus*: The seed of this plant should be sown in *March* upon a bed of rich light earth, kept clear from weeds; and the year after, they may be transplanted into the beds where they are to stand and flower, which is the only culture they require; or you may sow them upon a moderate hot-bed in *March*, to bring them on sooner.

343. *Astragalus Alpinus procerior Alopecuroides*, *Tourn.* *Taller Foxtail Alpine Milk-vetch*.

The seed of these plants should be sown in the beginning of *April*, upon a bed of fresh light earth, putting a very thin covering over them, and in *June* following, may be transplanted into the borders of the flower-garden at a good distance, to allow them a large space.

344. *Aquilegia flore variegato*, *Columbine* with variegated flowers.

345. *Aquilegia Virginiana*, the *Virginian Columbine*, with variegated flowers.

The seed of those plants should be sown on a bed of fresh earth in *March*, and in dry weather, should be moderately watered: In the beginning of *July* they may be transplanted into a nursery-bed of the same soil, where, if they attempt to flower, nip off their blossoms, and in *March* following, plant them either as edgings to the borders of summer flowers, or upon the beds, allowing some of them to continue in the nursery-bed, to see their colours; and, if good, throw away the bad ones, and supply their places with the good ones from your nursery-bed; transplant and divide their roots in the end of *July*, and trim their long fibres, but do not divide their roots too much. I always sowed the
seed

seed of those plants once every two years, and such as I had from *Holland*, whereby I had many new varieties.

346. *Lapathum*, or *Burdock*; but when names are given, which no botanical authors treat of (at least the modern ones) it is impossible to guess at the species or genus of a plant.

347. *Cbenopodium lini folio villoso*. *Tournef.* *Flax-leaved Orach*: called *Belvidere*.

These plants may be sown in autumn, or early in spring, and when they are two inches high, should be transplanted into pots or borders; when they are full grown, they make a very pretty pyramidal bush to adorn rooms; they are very hardy, and sow themselves; when in pots, they should be often watered.

348. *Lunaria perennis siliqua rotundiore, flore albo*, *Tourn.* *Great Perennial Honesty*, or *Moonwort*, with a round pod and a white flower.

349. *Lunaria major siliqua rotundiore argentato*, *J. B.* the *Larger Honesty*, with a rounder pod silverised; it blows a strong blue flower in *April* and *May*.

These plants should be sown in autumn, soon after their seed is ripe, and in *June* following, they will flower, and perfect their seed. Their seed-vessels make an odd appearance. Some persons cut them with long stalks, and put them in pots or chimnies during winter.

350. This plant will be treated of amongst the *Piper Indicum*'s. But as it is *Perennial*, it cannot be kept well in winter without a temperate heated stove, where it thrives and fruits very well. Most of the other kinds of *Capsicum*'s being annuals, I thought proper to give the curious this caution concerning the culture of this plant.

351. *Caryophyllus barbatus hortensis latifolius, flore variegato*, *Boerb. Ind.* The *broad-leaved Sweet-William*, with variegated flowers.

These plants are best propagated by seed, which should be sown in *March* on a bed of rich light earth, and in *June* should be transplanted into beds at eight inches distance, plant from plant, and in *March*, you may plant them out into the borders, or use them

for edging to the borders of the pleasure-garden, where, if they are of the right kind, they will make a very pretty show.

By this management of their seed and seedling plants, anno 1749, I raised in my garden a plant of the whole podded double *Sweet William*, of a finer colour than *Fairchild's Mule*, and mixed with a black fimbriation round the inside of the uppermost petals. These plants put into pots in a fresh light soil, make a pretty appearance in the windows or chimnies of rooms in summer.

352. *Clinopodium Virginianum angustifolium, floribus luteis amplissimis purpureis maculis notatum, cujus caulis, sub quovis verticillo decem & sæpe duodecem foliis purpureis circumcinctus est.* *Banisterii Pluck. Phytol. Tab. 24.* *Narrow-leaved Virginian Field Basil*, with the largest yellow flowers spotted with purple.

This is a pretty showy plant; the seed should be sown upon a very dry warm soil, and is hardy enough; though in case of extreme hard weather, I had some of them in pots, the better to preserve them from the rigour of our hard winters; you may sow them upon a moderate hot-bed.

353. *Carlina acaulis magno flore, C. B. Carline Thistle* without stalks; and a large flower; some plants of these have white flowers, and others have purplish.

The seed of these plants should be sown in *March* upon a bed of fresh undunged earth, and should be kept clear from weeds, and thinned, if sown too thick; they flower the second year after sowing, but do not agree with transplanting.

354. *Colutea orientalis, flore sanguinei coloris, lutea maculea notato, Tourn. Corr. Eastern Bladder Senna*, with a blood coloured flower mixed with yellow spots.

The seed of this plant I always sowed in *March* on a moderate hot-bed, and in *May* transplanted them into pots, sheltering them in winter in an airy case, and gave them fresh earth in the spring of the succeeding year, by such culture they flowered and seeded well.

355, 356, 357, 358 are all feminal varieties of the *Digitalis*, or *Fox-glove*. These plants should be sown in *March* on a bed of very poor dry soil, and kept clear from weeds: The second year they will flower well, provided

vided they are not planted upon too fat ground, which rots them.

359. *Digitalis Virginiana*, erroneously called, which induced me to sow it in the same way I did the others, but the winter killed it; I found it to be the *Digitalis Canariensis acantoides frutescens, flore aureo*, Hort. *Amstelodam*. Shrubby Canary Fox-glove, with a golden flower.

The seed of this sort I sowed in *March* upon a hot-bed of tan-bark, and in six weeks transplanted them into pots of fresh and very sandy earth, and sunk the pots into this bed to make the plants take root the sooner; which when I perceived, I exposed them in a warm place with other exotic plants, and sheltered them in a green-house in winter, where they should be kept free from all frost, giving them some fresh earth about their roots in *May*. I exposed them to the open air in *June*, with *Myrtles*, *Oranges*, &c. where they flowered to great perfection, it being one of the prettiest plants which adorns a green-house, and makes a fine show when in flower. I gathered ripe seed from it.

360. *Geranium Batrachoides, gratia Dei Germanorum*, C. B. P. *Cranes-bill* with a crow foot leaf, and a large blue flower.

361. *Geranium Batrachoides, gratia Dei Germanorum, flore variegato*, C. B. P. *Cranes-bill*, with a crow-foot leaf and a striped flower.

The seed of those plants should be sown in *March*, and in the succeeding spring may be early transplanted into the borders of the flower-garden, where they will flower and seed very well, and make a good variety amongst other flowers of their season.

362. *Horminum orientale foliis ramosis et verrucosis angustis, flore albo*, Tourn. *Eastern Clary* with rough and narrow warted leaves and a white flower.

Their seed may be sown in *March*, and kept clear from weeds, and transplanted into the flower-garden the succeeding spring, where they will flower and prosper well.

363. *Cytinus Aspinus latifolius, flore racemosa pendulo*, Tourn. *Broad-leaved Laburnum*, or *Bean Trefoil*.

The seed of this tree should be sown in *March*, and may be covered with an inch only of good garden mould, and often watered in dry weather. The plants will appear in six weeks after sowing, when they must be kept clear from weeds; here they may continue until the *March* following, when they should be transplanted into a nursery-bed by themselves, at the distance of three feet, plant from plant; be sure always to keep them clear from weeds in the nursery: They may stand for three years, when they may be planted out where they are to remain. It seems odd enough, that amongst *Annual* and *Biennial* flowers, the *Dutch* should insert the seed of this tree in their catalogues; but it having a fine flower, which in *May* makes a pretty show, perhaps has induced them to insert it. The flowers of this tree are said to be very prejudicial to bees, by purging them.

364. *Lathyrus perennis latifolius major*, C. B. *Broad-leaved common Everlasting Pea.*

This should be planted or sown near high walls of houses, because of its rampant growth, to which its long branches should be fastened.

365. *Lathyrus latifolius perennis minor, flore majore*, Boerb. Ind. *Broad-leaved lesser Perennial Everlasting Pea*, with a larger flower.

Both those sorts should be sown in a border as our common garden pea, and be kept clear from weeds, and in *March*, transplanted where they are to remain. This second sort grows only to five feet high, and has a fine large flower. Of this sort I have seen the white flowered kind at Mr. *Young's* garden at the water of *Leith*.

366. Is already treated of amongst the *Leucociums*.

367. *Lychnis coronaria Dioscoridis sativa, flore rubro veluti flammeo fulgens*, C. B. P. *Rose Campion*, with a flaming red flower.

This plant, when propagated from seed, should be sown in *March* upon a bed of light fresh earth, and be kept clear from weeds: You may, in *June*, transplant them into a nursery-bed, at seven inches distance, shading and watering them gently and often, until they have rooted, and that you perceive them again to grow: In *March* following, you may transplant them into

into the flower-garden, where they are to continue; and keeping them always clear of weeds, is all the culture they require.

368. *Lychnis coronaria floribus variegatis*, or *striped flowered Champion*: This requires the same culture. Of this sort particularly I had the double flowered, which was much valued. The painted *Lady Rose Champion*, agrees well with the culture of the other *Rose Champions*.

369, 370, 371, 372, 373, 374, 375, 376, and 377, are all seminal varieties of the *Malva hortensis-rosea*, or *Holly-hock*.

The seed of these plants should be sown upon a bed of fresh earth, the beginning of *April*; having before sowing watered it, and then covering it with an inch of the same mould, keep them clear of weeds, in *March*, I transplanted them into the borders, where they were to remain and flower. Their flowers, when going off, and their stalks decaying, I immediately cut close to the ground; nor do I approve of transplanting them, but this once, from their seed-beds, because of their long-tapped root: I always sowed their seed once every two years, for a new succession of plants when the old ones failed, which seed I always chose to have from abroad. This plant is very offensive to bees.

378. Is one of the species of the *Abutilons*; but I distinguish it from other species of the same genus, by the name here given it in the *Dutch catalogues*, *Abutilon Mexicanum*.

379. *Moldavica Americana trifolia odore gravi*, *Tourn.* *Three-leaved American Moldavica*, with a strong scent, commonly called *The Balm of Gilead*.

The seed of these plants should be sown in *March* in a hot-bed, and when two inches high, should be planted in small pots separately, and placed again into a hot-bed, where they may continue till *June*, and afterwards be set in the air, and in *October* they should be brought into the green-house, and put as near the open air as they can, and in mild weather should have air given them. They are also propagated by cuttings in any of the summer months, and they will take root in three weeks by which means they may be continued, when the old plants fail.

380. *Papaver Indicum perenne, flore magno rubro, Indian Great Poppy.* This is a *Perennial* plant; it should be sown in patches, where it is to remain, and keeping it clear from weeds, is all the culture it requires. This plant affords plenty of seed annually.

381. *Coronopus maritimus roseus Baconi, Rar. Plant. Rose-like Sea Buckthorn Plantain.*

The seed of this plant should be sown in *March*, on a border of fresh earth, and kept clear from weeds; and if their seed is suffered to drop upon the earth, there will be sufficient of plants.

382. *Scabiosa perennis Sicula, flore sulphureo, Boerb. Ind. Perennial Sicilian Scabious, with a sulphur coloured flower.*

The seed of these plants should be sown in *March*, on a bed of light earth, and should in *June* be transplanted, where they are to remain for good, and be kept clear from weeds: Some of them may be planted into pots, to flower in rooms, and to be preserved in winter: And this method you must use with them; for in winter, and in the first year of their growth, they are very apt to die.

383. *Santolina flore majore, foliis villosis et incanis, Tourn. Hoary-leaved Lavender Cotton, with a larger flower.*

These plants are propagated from seed sown on a lean gravelly soil; they are also propagated by cuttings, which in a little time will take root, and both they and the seedlings may be planted into pots, to adorn balconies: They are very hardy plants, and endure the winter well.

384. *Tythimalus latifolius, Cataputia dictus, H. L. Broad-leaved Spurge, called Cataputia.*

The seed of this plant should be sown in the end of *April*, on a border of fresh earth, where they are to remain, and be kept from weeds; the second year they will flower and seed in autumn, which, if allowed to sow themselves, will furnish abundance of plants.

385, 386, 387, are already described under the article *Valeriana*.

388. *Vicia supra infraque terram edens, Tourn. Eatable Vetch, having pods both above and below ground.* This is an *Afri. an* plant originally, and has been long culti-

cultivated in the *East Indies*. I planted the seed in large tubs of good earth, and placed them in a tan hot-bed, that they might have room to grow both above and below ground, which they cannot do, when they are confined in the narrow bounds of pots; and without this practice, the plants will not ripen their seed, which are indeed a very extraordinary production of nature.

389. *Campanula vulgarior, foliis urticae vel major et asperior, flore duplici albo majore, Boerb. Ind.* Large Nettle-leaved Bell-flower, with large double white flowers.

390. *Campanula vulgarior, foliis urticae, vel major et asperior, flore duplici caeruleo, Hort. Reg. Parisien.* Large Nettle-leaved Bell-flower, with a large double blue flower.

The seed of these plants, which are but semi-double flowers, should be sown in a bed of very fine rich sandy earth in *April*; in *July* they may be transplanted, where they are to remain for good, should be kept quite clear from weeds, and be watered at planting, to settle the earth to them; they will endure the severity of our winters very well. But if they offer to flower the first year, their stems should be cut down to the leaves, and the second year they will flower, and some of them will seed well.

Some of these I planted in pots, to have them blossom early in rooms. Their common name is the *Viola Mariana*; they are sold in pots in *May* and in *June*, at *Rome*, to adorn their chambers.

391. *Vulneraria rustica, f. B. Rustic Woundwort Kidney Vetch, or Lady's Finger.* Their seed should be sown in *March*, and should be kept clear from weeds, and they will stand the winter very well, and will flower and seed well the succeeding season.

Such Seeds as are to be sown on Hot-beds.

392. *Abutilum Indicum, flore aurantii coloris, f. B. the Indian Abutilon,* with orange coloured flowers.

The seed of this plant must be raised on a hot-bed, and afterwards transplanted into pots, or borders of good fresh light earth; and it being an *Annual* plant, will flower and ripen its seed; which to have in perfection, the pots should be removed in *August* into the green-house.

The several sorts of *Amaranthus*, from 392 to 402 inclusive, together with the *Amaranthoides*'s, have been fully treated of under the article *Amaranthus*, in the beginning of this catalogue, which renders it unnecessary to be repeated here, see No. 10.

403. *Althea Americana, floribus aureis*, American Mal-low, with gold coloured flowers.

This plant is propagated by seed, which must be sown on a hot-bed in *March*, and should afterwards be potted and inured to the open air, where it will flower well.

404. *Bidens trifolia Americana, Leucanthemi flore*. Tourn. Three-leaved American Hemp Agrimony, with a greater daizy flower.

The seed of this plant should be sown in *March*, upon a hot-bed, to bring the plants forward, and then planted out either into pots, or into warm borders, where they will flower, and perfect their seed very well; but I prefer planting them into pots.

405. *Cannacorus, flore luteo punctato*, Tourn. the yellow spotted Indian Reed.

406. *Cannacorus, flore coccineo splendente*, Tourn. the fine Scarlet Indian Reed.

The seed of those plants should be sown in *March* upon a good hot-bed, and the plants when they are come to some strength, should be planted into pots of fresh light earth, and be again placed with the pots in a fresh hot-bed: When they are first taken out of the hot-bed, they should be set in the green-house, and afterwards be placed in a warm situation, and free from winds: They will attempt to flower the first year, but those may be cut off, in order to strengthen their roots; the second year they will shew their grand bloom; in winter they should be placed in the green-house, giving them little or no water; in *March* transplant their roots into large pots, put them into a hot-bed to forward them, and afterwards take them out, and use them as in the former season; but when they are coming to bloom, if you put them into the green-house or in rooms, they will blossom fairer than those do which have not any shelter.

407. *Stramonium Malabaricum fructu glabro, flore simpliciter violaceo odorato*, Tourn. Malabar Thorn Apple, with a smooth

smooth fruit, and a single violet coloured sweet scented flower, commonly called the *Dutro of the Persians*.

There is another kind of this *Stramonium*, viz. *Stramonium Malabaricum fructu glabro, foliis latioribus nervosis, flore magno*. Great Malabar Thorn Apple, with a large white flower. This plant may be sown on a hot-bed in the spring; it will flower and ripen its seed very well in the open air, but if it is housed, the flowers will be larger.

The seed of those plants should be sown on a hot-bed, and the plants when come up should be treated in the same manner as is prescribed for the *Amaranthus*, to force them on, otherwise they will neither flower nor perfect their seed.

408. *Ficoides Africana, plantaginis folio undulato, micis argenteis asperso*, Tourn. Ac. Reg. African *Ficoides* with a waved plantain leaf, covered over with silver drops, commonly called the *Diamond Ficoides*.

The strange appearance which this plant has of clear large drops of substances like ice, upon its leaves and stalks particularly, gives it a merited place in every collection of plants.

The seed of this beautiful plant should be sown in *February* in pots, put into a hot-bed, and in five weeks after they will come up, provided they are sown in a dry sandy mould; when they have six leaves, they should be transplanted into pots filled with the sandy mould, and again put into a hot-bed, until they become large plants; but as soon as you perceive them to branch out and spread, the pots with the plants should be taken out of the beds, and put into the green house for ten or twelve days, as near the windows as you can, to inure them to the air.

Some of them you may keep in pots, where they will flower and seed better, when their roots are confined, than those which are taken out of the pots and planted in the garden, which will spread a great way, and shew the spangling of their crystalline-like matter upon their stalks and leaves: But observe, when the plants are in pots, and designed to flower and perfect their seed, that you do not suffer their roots to come out at the holes of the pots, for if they reach the earth upon which the pots
are

are placed, they would grow and prevent the plants from flowering or seeding; therefore set those pots upon the pavement, or upon bricks, which will make them soon fly up into seed. A friend of mine had from eight plants of those *Ficoides*'s in pots, a vast quantity of seed, so surprising that I could scarce credit so small and so few plants could produce so much seed. His method was this: After the plants had been planted for some time in the pots, and were prospering and growing, he put them upon a lead battlement on the top of the house, well exposed to the sun; the reflection of which upon the leads, made the plants grow well, and their being curbed in growth of leaves, by being confined in the pots, made them to flower, and to perfect their seed, in a much greater degree than if they had been in any garden. This I mention for persons who are desirous of much seed from their plants.

I have also kept them all winter, by planting their cuttings in *August* or in *July*, ten days after I had taken them off their mother plants; and when their wounds at the amputations were dry, I potted them in very dry sandy mould, placing them in the green-house in the most airy place, or into the glass-case, which I have already described in this work; but at the same time preserving them from all manner of frost, and giving them very small quantities of water. These plants flowered the succeeding year much better than those which were sown the same season, and from those plants I had good seed.

409. *Lacrimæ Jobi*, *Clus. Hist.* Common Job's Tears. The seed of this plant should be sown in *March* on a warm border of fresh earth, at six inches distance, seed from seed, and should be kept clear from weeds; this plant is named *Coix* by Doctor *Linnaeus*, Professor of Botany at *Upsal*, in *Sweden*.

410. *Melongena spinosa*, *fructu rotundo croceo*, *Tourn.* Mad Apple, with a round saffron coloured fruit.

411. *Melongena spinosa fructu oblongo violaceo*, *Tourn.* Mad Apple, with a long violet coloured fruit.

There is now a kind of it called the *Melongena Americana fructu albo oblongo*, or Egg Plant, from the resemblance which the fruit of this plant has to an egg; the culture

culture of which is the same with the other *Melongena's*; observing, if you keep it in the stove, or in a window within the glass, it will become very large, and will there ripen its seed well.

I sowed the seed of those plants upon hot-beds in *March*, and in *April* transplanted them into another hot-bed, at six inches distance from one another, giving them good and frequent waterings, and gave them all the air possible in mild weather; by the beginning of *June* they had quite filled this bed; then having a bed of good rich earth, in a warm situation of the garden, I lifted them with large balls of earth, and planted them into pits made for them, shading and watering them until I perceived they had taken new root, keeping them clear from weeds. As soon as their fruit appeared, I gave them great plenty of water, without which they will not fruit.

412. *Ocymum minimum*, C. B. P. commonly called *Busb Basil*. This requires precisely the same culture, with the *Melongena's*; and when they come from the second hot-bed, may be planted to adorn rooms.

413, 414, 415, 416, 417, 418, 419, 420, and 421, are all seminal varieties of the *Capsicum Indicum*, or *Guinea Pepper*. They require the same culture which has been prescribed for the *Amaranthus*. Their fruit either in pots, or in the open ground, make a fine variety, hanging upon the plants in autumn, and in winter.



An Alphabetical List of the English Names of the most curious Annuals and Exotick Plants, which have been raised in our Gardens, with Reference to their Culture, (by the Figures preceding each Article) as directed by Sir James Justice, Bt. being such as he had from Holland, and raised in Scotland. The Figures have also a Reference to the Dutch Catalogue, which we have given, that Gentlemen might not be under any Difficulty, when desirous of importing any of them.

392 *A* Butilon, the Indian, with orange coloured flowers,
196 *A* African Flax, broad leaved,
197 ———, the greater Perennial blue,

416 The GARDENER'S NEW DIRECTOR.

- 4 *Agrimony*, or *Peruvian Hemp*,
 404 ———, the *Hemp of America*,
 47 ———, the *Hemp*, broad leaved of *Canada*,
 3 *Alpine Ageratum*, purple flowered,
 20 *Aleboof*, the *Rock*,
 8 *Amaranth Tree*,
 10 *Amaranth*, red spiked, &c.
 Amaranthus, *Globe*, p. 321,
 137 ———, with a great whitish spike of flowers,
 291 *Apple*, the *yellow Love*,
 292 ———, the *Love*, with a yellow cherry-shaped fruit,
 293 ———, with a red fruit,
 294 ———, with a red cherry-shaped fruit,
 407 ———, the *Thorn*, of *Malabar*, or *Dutro of the*
 Persians, with a violet flower,
 ———, the *great Malabar*, with a large white flower,
 410 ———, *Mad*, with saffron coloured fruit,
 411 ———, with violet coloured fruit,
 286 *Arfsmart*, the *Eastern*, with a tobacco leaf,
 23 *Asphodel*, yellow, or *King's Spear*,
 28 *Asteriscus*, or yellow *Starwort*,
 67 *Avens*, the *Mountain*,
 252 *Balm*, the *Turkey*, with a white flower,
 379 *Balm of Gilead*,
 32 *Balsam Apple*, or *Female Balsam*,
 352 *Basil*, the *Field*, narrow leaved *Virginian*, with its
 yellow flowers, spotted with purple,
 287 *Bean*, the *red-flowering Kidney*,
 363 ———, *Trefoil*, or broad-leaved *Laburnum*,
 342 *Bearbreach*, the *smooth-leaved*,
 389 *Bell-flower*, the large *Nettle-leaved*, with white
 flowers.
 390 ———, with a large double blue flower,
 44 *Bellis's*, or *Daizies*,
 347 *Belvidere*, or *Fox-leaved Orach*,
 200 *Bird's-foot*, red square codded,
 201 ———, narrow leaved, with a purplish flower.
 268 ———, the *Caterpillar*,
 354 *Bladder Senna*, the *Eastern*, with a blood coloured
 flower, mixed with yellow spots,
 50 *Borage*, *Rose coloured*,
 51 ———, the *striped leaved*,

- 52 *Borage*, with large blue flowers,
 381 *Buckthorn*, the *Sea Rose-like Plantain*,
 52 *Bugloss*, greater narrow leaved, with white flowers,
 346 *Burdock*, or *Lapathum*,
 412 *Bush Basil*,
 58 *Calamint*, with large flowers,
 182 *Campion*, the *Red Corn*,
 183 ———, the *small hairy*, with a variegated flower,
 184 ———, the *single white Rose*,
 186 ———, the *Spanish*, with a purple flower,
 188 ———, the *Corn Annual hairy*,
 189 ———, with a flaming red coloured flower,
 367 ———, the *Rose*, with a flaming red flower,
 368 ———, the *striped flowered*,
 ———, *painted Lady Rose*,
Cardinal, the *Red*, which excels all other flowers
 in the richness of its colours, page 310,
 ———, the *blue*, do.
 305 *Caterpillar*, the *prickly*,
 306 ———, the *smooth podded*,
 307 ———, the *thick podded*,
 45 *Chamomile*, the *broadest leaved Portugal*,
 46 ———, *stinking*, or *May-weed*,
 111 ———, with a white flower,
 112 ———, with a yellow flower,
 158 *Cherry*, the *Common Winter*,
 81 *Chiches*, *white flowered Garden*,
 82 ———, with purplish red flowers,
 169 *Clary*, with purple and violet tops,
 362 ———, the *Eastern*, with a white flower,
 344 *Columbine*, with variegated flowers,
 345 ———, the *Virginian*, variegated,
 91 *Comfrey*, the *greater Female*, with white flowers,
 92 ———, *Eastern*, sweet scented, with blue flowers,
 94 ———, with a narrow viper's bugloss leaf,
 96 ———, with a large bugloss leaf, and white flowers,
 248 *Convolvulus*, a species that expands its blossoms
 when the sun's rays are off,
 115 *Corn-bottle*, with variable flowers,
 116 ———, white flowered,
 117 ———, blue flowered,
 118 ———, purple flowered,

418 The GARDENER'S NEW DIRECTOR.

- 330 *Corn Sallad*, the *Candy*, with a bladdered fruit,
 331 ———, with a large hairy umbellicated seed,
 149 *Cranes-bill*, with a blue flower,
 150 ———, the *musked*,
 151 ———, with a large purple flower,
 360 ———, with a crow-foot leaf, and a large blue
 flower,
 361 ———, with a striped flower,
 113 *Cucurbita*, or *Squash*,
 114 *Cucumber*, the *squirting*,
 167 *Cummin*, the *wild Eastern borned*,
 44 *Daizies*, or *Bellis's*,
 45 ———, the *Ox-eye Portugal*, with a silver-jagged
 leaf,
 181 ———, the *Ox-eye*, with a tansey leaf,
 32 *Female Balsam*, or *Balsam Apple*,
 43 ———, let no one touch me,
 265 *Fennel*, with a small white double flower,
 266 ———, with a double blue flower, or *Devil in a Bush*,
 125 *Fennugreek*, the *Garden*,
 232 *Feverfew*, with curled leaves,
 233 ———, *double flowered*,
 408 *Ficoides*, covered with silver drops, called the *Dia-*
 mond Ficoides,
 89 *Flea-bane*, with silver leaves,
 90 ———, with yellow leaves,
 126 *Flos Adonis*, with a red flower,
 — ———, yellow flowered,
 355 *Fox-glove*, a variety of them,
 359 *Fox-glove*, the *shrubby Canary*, with a golden flower,
 155 *Fox-tail Grass*, the *common*,
 14 *Frog's-mouth*, or *Snapdragon*,
 63 *Fumitory*, the *podded*,
 202 *Gilliflower*, the *lesser Annual Stock*,
 — ———, the *ten weeked*,
 204 ———, the *great hoary*, with a double flower,
 205 ———, ———, with a double purple flower,
 206 ———, with a double purple and white varie-
 gated,
 207 ———, the *Rose coloured*,
 209 ———, with a great hoary crimson flower, na-
 med the *Brumpton Stock*,

- 146 *Goat's Rue*, the common, with white flowers,
 147 ———, with blue flowers,
 245 *Grain Gold of Pleasure*, the broad leaved,
 155 *Grass*, the common *Fox-tail*,
 56 ———, the greatest quaking, with red panicles,
 57 ———, the smaller trembling,
 413 *Guinea Pepper*, a variety of them,
 85 *Gum succory*,
 57 *Hare's Ear*, Annual long leaved,
 324 *Hare's-foot*, the hairy narrow-leaved, with a red flower,
 322 *Hartwort*, the small *Narbonne*,
 323 ———, the small, of *Syria*,
 162 *Hawk-weed*, the crooked seeded,
 163 ———, the lesser, with a sulphur coloured flower,
 164 ———, lesser yellow,
 165 ———, the golden, with hairy leaves,
 339 *Heart's Ease*, *Pansie's*, or three-coloured *Violet*,
 369 *Holly-hock*, a variety of them,
 348 *Honesty*, or *Moonwort*, with a white flower,
 349 ———, the larger, with a rounder pod silverised,
 72 *Honeywort*, with white flowers,
 73 ———, with prickly leaves and a yellow flower,
 74 ———, with purple and white party coloured flowers,
 75 ———, with red and white party coloured,
 159 *Honey-suckle*, the greater Annual *French*, with leaves like the sensitive plant,
 160 ———, the *French*, with a delicate red flower,
 161 ———, the *French white flowered*,
 313 *Hore-bound*, the greater *Base*, with deep cut leaves,
 171 *Hyssop*, the red flowered,
 248 *Jalapa*, a plant, that only expands its blossoms when the sun's rays are off,
 326 *Indian Wheat*,
 409 *Job's Tears*, the common,
 23 *King's Spear*, or yellow *Asphodel*,
 363 *Laburnum*, broad leaved, or *Bean Trefoil*,
 97 *Lark-spurs*,
 227 *Lavateras*,
 180 *Lavender*, the cut-leaved,
 383 *Lavender Cotton*, the hoary-leaved,

- 311 *Looking-glass, Venus's*, with a white flower,
 312 ———, with a blue flower,
 291 *Love-Apple*, the yellow,
 292 ———, with a yellow cherry-shaped fruit,
 293 ———, with a red fruit,
 294 ———, with a red cherry-shaped fruit,
 9 *Love lies a bleeding*,
 185 *Lychnis*, the pale, of *Constantinople*,
 187 ———, with scabious leaves,
 216 *Lupine*, the *Garden*, with a white flower,
 217 ———, the common yellow,
 218 ———, the narrow leaved blue,
 219 ———, the great *Foreign*, with a flesh coloured flower,
 commonly called the *Rose Lupine*,
 220 ———, the lesser blue,
 221 ———, the great blue,
 222 ———, the smaller blue creeping *Virginian*,
 412 *Mad Apple*, the saffron coloured fruit,
 413 ———, a long violet coloured fruit,
 1 *Mallow*, *Eastern*,
 224 ———, the Candy,
 228 ———, upright *Eastern*,
 229 ———, upright *Chinese*,
 230 ———, the curled leaved,
 231 ———, the variegated,
 403 ———, the *American*, with good coloured flowers,
 242 *Melilot*, the *Italian*,
 244 ———, the smaller creeping,
 59 *Marygold*, the common,
 60 ———, pale coloured,
 61 ———, the largest double,
 62 ———, the cilding,
 76 ———, the double white *Corn*,
 77 ———, the double yellow,
 78 ———, the quilted corned,
 79 ———, the double sulphur,
 127 ———, the greatest upright *African*, with a very
 large orange-coloured flower,
 128 ———, with a large orange-coloured piped flower,
 129 ———, the greatest upright *African*, with a very
 pale yellow double flower, with a sweet scent,
 130 *Mary-*

- 130 *Marygold*, the greatest upright *African*, with a large double, pale and piped flower, called the *Quilted African*,
 132 ———, the common *French*, with a single flower, called *Indian Clove Gillyflower*,
 133 ———, the smallest *French*, with a small red hairy flower,
 134 ———, the middle *French*, with a double yellow flower,
 3 *Maudline*, common,
 326 *Maize*, or *Indian Wheat*,
 343 *Milk-vetch*, the taller *Fox-tail Alpine*,
 246 *Millets*,
 Minionette d'Ægypte, or the yellow flowering *Bastard Rocket*, with most sweet smelling flowers, see its culture page 265, *Gingabo*, so called by the *Dutch*,
 253 *Moldavia*, the *Eastern*, with blue flowers,
 254 ———, with large violet flowers,
 348 *Moonwort*, or great *Perennial Honefly*,
 30 *Mulberry-blight*, or *Berry bearing Orach*,
 31 ———, greater, or *Strawberry Spinage*,
 48 *Mulleine*, white,
 49 ———, the *Moth*, white,
 ———, rose-coloured,
 333 ———, the *Female*, with a large yellow flower,
 219 *Mustard*, the small *Rock Mitbridate*, with a gold-coloured flower,
 320 ———, the *Eastern Rock Mitbridate*, with an orange coloured flower,
 321 ———, the *Virginian Mitbridate*,
 314 ———, the *Annual Bastard Mitbridate*,
 315 ———, the *Candy Mitbridate*,
 316 ———, the *Mitbridate of the Alps*,
 317 ———, the *Alpine, Violet-flowered*,
 318 ———, the *Portugal Mitbridate*, with a white and purple flower,
 198 *Navel Wort*, the *Venus*,
 258 *Nasturtiums*,
 341 *Nettle*, the *Roman*,
 347 *Orach*, the *Flax-leaved*, or *Belvidere*,
 54 *Ox-eye*, the *Eastern*, with large yellow flowers,
 55 ———, hoary-leaved, with sulphur coloured do.
 56 ———, with large white flowers,

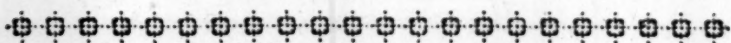
422 'The GARDENER'S NEW DIRECTOR.

- 298 *Palma Christi*,
71 *Parsley of Montpellier, Bastard*,
175 *Pea, the painted Lady*,
176 —, *the sweet scented*,
267 —, *the winged*,
364 *Pease, the common Everlasting broad-leaved*,
365 —, *the broad leaved lesser Perennial Everlasting*,
285 *Pelecinus, the common*,
415 *Pepper of Guinea, a variety*,
11 *Pimpernel, white flowered*,
12 —, *red*,
13 —, *blue*,
80 *Pine, the Ground, with ferrated leaves*,
68 *Pink, the double China*,
— —, *the variegated China or Indian*,
381 *Plantain, the Rose-like Sea Buckthorn*,
19 *Poppy, the prickly*,
152 —, *the yellow borned*,
153 —, *the Eastern borned, with a red flower*,
154 —, *the blue flowered borned*,
269 —, *the Garden*,
278 —, *the Corn*,
380 —, *the great Indian*,
405 *Reed, the Indian, yellow spotted*,
406 —, *the fine scarlet*,
297 *Rocket, the Costard*,
367 *Rose Campion, with a flaming red flower*,
70 *Saffron, Bastard or Saf-flower*,
330 *Sallad, the Corn Candy, with a bladdered fruit*,
331 —, *with a large hairy umbellicated seed*,
299 *Scabious, the tallest Annual*,
300 —, *the Childing and the Musk*,
382 —, *the Sicilian Perennial*,
84 *Senna, Ethiopian Bladder, with red flowers*,
354 —, *the Bladder, with a blood-coloured flower mixed*,
310 *Sesamum, Matbiolus's Bastard, or Oily Grain*,
304 *Shepherd's Needle of Crete*,
14 *Snapdragon, or Frog's Mouth, with a white spread-*
ing flower,
15 — *great Rock, with a purple flower*,
16 —, *broad leaved and white flowering*,
17 —, *red flowers*,
18 —, *striped*,

- 295 Sneezewort, the white double flowered,
 296 ———, the double Purple,
 190 Soapwort, the double,
 255 Spikenard, with white flowers,
 256 ———, the blue Austrian,
 257 ———, the variegated,
 384 Spurge, the broad-leaved, called Cataputia,
 113 Squash, or Cucurbita, with yellow spots,
 24 Star-wort, Annual, from China, various colours,
 28 ———, yellow,
 214 Stock, the Purple early,
 215 ———, the early red,
 168 St. John's Wort, the common,
 119 Sultan, sweet, the white flowered,
 120 ———, the yellow flowered,
 121 ———, the Purple,
 64 Thistle, great spined Italian,
 65 ———, the Annual Lady's, with dark spotted leaves,
 66 ———, the lesser yellow,
 308 ———, the Annual Golden,
 353 ———, the Carline, without stalks, and a large flower,
 407 Thorn Apple, of Malabar, or the Dutro of the Per-
 sians, with a violet flower,
 — ———, the great Malabar, with a white flower,
 191 Toad-flax, with small red flowers,
 192 ———, the narrow leaved, variegated,
 193 ———, the broad three leaved, purple flower,
 194 ———, four leaved yellow,
 195 ———, the sweet smelling great Purple,
 263 Tobacco, the great broad-leaved,
 264 ———, the greater round leaved,
 200 Trefoil, the red square coddled Birdsfoot,
 201 ———, the narrow leaved, with a purple flower,
 234 ———, the Snail,
 243 ———, the Sweet,
 325 ———, the tallest Eastern,
 363 ———, the Bean, or broad leaved Laburnum,
 327 Valerian, the Greek, with a blue flower,
 328 ———, with a white flower,
 329 ———, the Greek, with variegated flowers,
 311 Venus's Looking-glass,
 21 Vetch, the Annual Trailing Milk,

424 'The GARDENER'S NEW DIRECTOR.

- 22 *Vetch*, with purple flowers in clusters,
 83 —, the *Spanish Chickling*,
 122 —, *Camerarius's true jointed podded*,
 123 —, the *Horse Shoe*, with a single pod,
 124 —, —, many podded,
 166 —, *Violet, Dame's pale Mountain*,
 172 —, the *Chickling*, red flowered,
 173 —, with variegated flowers,
 174 —, the *Spanish Chickling Vetch*, with a yellow
 flower,
 177 —, the *creeping red Chickling*,
 178 —, the *Tangier*, with a deep red flower,
 179 —, the *wild creeping*,
 334 — or *Vicia*, a variety of them,
 343 —, the *taller Fox-tail Alpine Milk Vetch*,
 388 —, the *Eatable*, having pods above and below
 ground,
 391 —, *Rustic Woundwort Kidney*, or *Lady's Finger*,
 211 *Wall-flower*, the *great white*,
 212 —, called the *Raven*,
 213 —, the *common yellow*,
 199 *Willow-herb*, *narrow leaved*,
 351 *William*, the *sweet broad leaved*, variegated,
 340 *Woundwort*, *five leaved*.



Directions for the Culture of the Carnations.

THE next principal flower to the vernal tribe, which shews itself with splendor, is the *Carnation*, of which there are four sorts, viz. 1. *Flakes*, of which there are no more than two colours, whose stripes are large, passing through the leaves. 2. *Bizarres*, they are variegated with three or four different colours, in irregular spots. 3. *Piquetts*, such as have a white ground, spotted with scarlet, red, purple, or any other colour. 4. *Painted Ladies*, such as have their leaves of a red or purple colour on the upper side, and white underneath.

The seed of this flower is to be sown about the middle of *April*, in boxes or pots, filled with fresh light earth,

earth, mixed with rotten cow dung, and well incorporated, before it comes into use, the seed is to be but thinly scattered on the surface, to be covered to the depth of a quarter of an inch, with the same compost; to have the sun until eleven o'clock, and to be refreshed with water when necessary. By the end of *July*, the plants will be ready to be set out into beds of the same compost, to have an airy situation, and at the distance of three inches square, one from another, shading and watering them until they have rooted; here they are to be kept until *August*, or perhaps until the end of *September*, should the beds not be sufficiently moist to receive them on their second transplanting, which is to be in beds of the same composition as before, but at six inches distance each plant, and in four rows for the better laying their layers*, which is to be performed in this bed, where

* The process of laying layers of fibrous rooted plants is as follows: In *June*, when the shoots are strong, strip off the leaves of the lower part of such as you intend to lay, making choice of a strong joint about the middle of the shoot, not too near the heart or too near the root of the mother plant; then from this joint make a slit with your pen-knife in the middle of the stem, rising upwards half way or more to the next joint, as their distance may be situated; then cut off the tops of the leaves of the plant, and the swelling of the joint (where the incision began,) on the outside, so that the slit on that side may be separated, and have the appearance of a tongue, as from this point the fibres are to proceed, where they would not, did both sides of the slit keep united: You are now to stir up the earth, where you are to lay down your layer, making an impression on it, for to receive the shoot, where you are to lay it with your finger and thumb, gently bending it, to keep it upright, and to open the slit, then to be covered with the mould you raised, and forked down with a small stick for the purpose, near the mother plant; then give a gentle watering, which must be repeated according to the weather, but be sure to keep the earth moist. In about six weeks, they will have sufficiently rooted, so that they may be planted where they are to flower.

they are to show their flowers, when you may mark the most deserving of your care. That which blows without bursting the pod is to be preferred, but such that do, where they have some peculiar beauties, should be preserved, as they may improve by care, but before you can fully determine the beauty of the plants, they must have two years growth, whose perfections are to be determined by the following particulars: *First*, to have the stem strong, to support the flower erect. *Secondly*, The leaves broad, long and stiff, yet to expand freely. *Third*, The pod not to advance too high on the leaves. *Fourth*, The colours bright and regular. *Fifth*, To be full of leaves, which fall regular, rising high in the middle, and whose extremities form a regular circle. Such are the marks of a good flower, by which you are to determine those you chuse to keep, removing the single and ill coloured flowers, which will give room for the better laying of the others, whose layers will be ready for taking off by *August*, setting the larger flowers in pots, and the others in borders. But such as are intended for seed must be kept in the open ground, and the seed taken from the flower that has been raised from seed, and not propagated by laying, as they often prove barren.

Previous to the care of your layers, you must be provided with the following *Compost*, which is to consist of good upland pasture, or of a common whose earth is hazelly, or of a light sandy loam; of any of these take the surface to the depth of eight inches with the turf, let them be laid together in an heap to meliorate, turning it every month for one year; then you are to add to it one third of well rotted cow dung, or where it is not to be had, the same quantity of the rotted dung of a melon or cucumber bed, these are to be mixed together, and will be much improved by being often turned together for six months more. But, however good your compost may be, you are not to expect the use of the same, continually will keep your flowers in the highest beauty, wherefore it will be necessary, to have some of another composition, using that just directed for one year, and for the next, in the place of the cow dung, use that from your stable, with an addition of sea sand to lighten it; but
however

however good these precautions may be, you are not to expect a continuance of fine flowers from plants, that are spent in blowing, wherefore you must have in reserve some strong plants, whose flowers have been taken off as soon as they show, for the purpose of giving an additional strength to their roots, that they may give fine flowers the next season, not more than one of which are to be expected on each plant, wherefore let all others be taken from the lateral branches. By a continuance of this process, you will ever be prepared to show the finest flowers.

Your compost being ready in *August* or *September*, I would advise the taking off the layers, which are to be set singly in halfpenny pots filled with it, your pots being of a small size, you will the better be enabled to give the plants protection in the winter. In *October*, let them be set in beds of tan bark, whose heat is gone off, and then covered with a glazed frame, whose cover you are to take off or keep on, according to the season, as the plants must be protected from much rain and cold, and have the air admitted in mild weather. About the latter end of *February*, or as early as the season is favourable, transplant your layers into pots of eight inches over, first laying an oyster shell on the hole to carry off any superabundant water; when you have half filled the pots with your compost, you are to raise your layers with a ball of earth to their roots, which is to be taken down half way the stock, and thinned in order to come at the extremities of the fibres, as they are to be taken off; then you are to set your plant in the middle of the pot, with the remainder of the compost, gently closing it on the roots, and watering; observe that the lowest leaves of the plants are to line with the upper edge of the pots, to which the compost is to rise after it is well settled: The plants are to have a situation that will protect them from *Northerly* winds, and to have soft water given them, as the season may require; here they are to be kept until *April*, when they are to be staged for blowing, having a *South-east* aspect, defended from *Westerly* winds, by a shelter at some distance. About the middle of the month the plants will begin to shoot out for flower, which are to be supported with slender sticks, to which the shoots are to be tied with

some bass-matting, about the beginning of *June*, some of your early blowers will begin to burst their pods on one side, when with a knife you should gently open them in streight lines where the pods indent on the edges, too near the bottom; this will assist the flowers to lay their leaves regular, which is one of their greatest ornaments. In the season of flowering great care should be taken, that they do not want water, and that the principal flower may show well, let all others be taken away, as has been directed.

Your next care is that of preserving your flower from its greatest enemy, an insect called the Ear-wigg; for this purpose there are the following contrivances. Some set two pans of about fourteen or sixteen inches over, and three deep, one beside the other, at the distance of two feet; these they fill with water, and in each set a flower pot reversed; this is continued at the distance of every eight feet, on the reversed pots boards are laid to receive the pots with the flowers. Others have benches supported on four feet, which they set in so many pans of water; but when a flower is to stand singly, the pot is first set in a small dry pan, which is then set in a larger filled with water; such are the contrivances for their protection; while others do no more than place something of a conical form on the top of the stick that supports the flower; these tops are taken off every morning, to be cleared of such vermin, as have retreated there; here your care is not to end for the protection of this fine flower, as by being too much exposed to rain, or the sun's rays would hurry it out of blow, and cut short the reign of its beauty; therefore conical caps have been contrived for the purpose, to stand at the distance of five inches above the flower, of which some are made by the glaziers, and others of oiled paper, of a diameter sufficient to cover the flower; they are to be supported in their places by being fastened to the upright stick, to which the stem of the flower is tied, those in particular who use the glazed caps, must cover them with cabbage leaves, when the sun's rays are very strong, and that the leaves of the flower may be supported in the most beautiful manner, cut cards of a circular form, of about
five

five inches diameter, taking from the centre as much as you think the lower part of the flower will fill, then the rim is to be cut through, for the readier placing it between the leaves and the pod, on which they are to be regularly laid; when you may enjoy this pleasing beauty in high perfection, which will naturally lead you to contemplate and admire the great Creator, who has given these beauties for our entertainment and pleasure, as he has the corn of the field for our support, and not less dependent are we on him for our preservation, than the flowers of the garden on us, which were created for our delight, as God did man, that he might worship him.

PINKS are raised from slips or cuttings, which are to be taken off about the end of *July*, and at a time when rain hath fallen, but should the weather prove otherwise, they must be watered every second day, until they have rooted; They are to be planted in good rich earth, well prepared. Slips are to be taken close to the root of the mother-plant, when all the lower leaves are to be stripped off, and immediately set in the bed, at four inches distance every way, closing the earth with your hand, to exclude all air; In autumn they will be ready to plant where they are to flower. Cuttings are no other than a slip, cut into pieces with two or three joints, to be treated as the slips, and care taken in covering them.

SWEET-WILLIAM, the double, are propagated by layers like the *Carnation*, and delight in a middling soil, not too light, nor too heavy or stiff, which must not be too highly dunged; that called the *Mule* is a very fine flower, shewing its beauties in the month of *June* and *July*. This plant is very subject to canker, if planted in a soil overcharged with dung, and is to be attended and assisted as the seasons may make it necessary.



Directions for raising the Bulbous Iris.

THE next showy flower to be treated of, is the *Iris*, or *Flower de Lys*, or *Fleur du Lys*; and they are of two sorts, the narrow-leaved or *Spanish Botanique*, the *Xyphion angustifolium*, and the *Xyphion latifolium*, or *Englisch Iris*; in the *Dutch catalogues*, they are called, first, *Iris Hispanica*, and in the latter, *Iris Anglica bulbosa*: The great varieties that are of this flower, are obtained from seed, in the following manner.

Having provided yourself with good roots from the florists at *Haerlem*, plant them in *October*, in such a situation as they may have the sun only until eleven o'clock; they are to be planted three inches below the surface of the earth, which should be light, fresh, sandy, and very moderately dunged; but if your soil is fresh and rich in its nature, it will not require any dung; and to prevent the roots from running down, the bed must be beat hard two feet below the bottom of the bulb; observe to keep them clear of weeds. When they come to flower, mark such as you chuse to save seed from, which must be such as have long bold stems; for they give the best flowers. When their seed-vessels become dry, and begin to open, cut them down, and rub out the seed to prepare for sowing: The others you are to cut to the ground as soon as their flowers fade. Make boxes ready, twelve inches deep, three feet broad, and six long, with many holes in the bottoms, to be covered with concave oyster-shells, to allow the water to pass off. In *October*, sow the seed in rows, two inches, row from row, and half an inch, seed from seed, as here they are to remain for two or three years: The soil most proper for them is, four parts of good, light, fresh earth, the same as is directed for *Carnations*, one part of good, light, white, dry sea-shore sand, and one part of well-rotted cow dung: Let their situation be to the south-east, not very near to a wall or hedge: Let these boxes have wooden folding covers; but from *March* they are not to be used, and in hot weather they are to be shaded from the sun's rays, watering them

them when their leaves are up, but not when down. At the latter season take off two inches of the top earth, replacing it with fresh; and in severe frosts, lay two inches of old rotten tan-bark over them. Thus you may use them, until the third year, when they are to be lifted out of their boxes: They are to be planted into a border of the same aspect as before, and made up of the compost used in the beds for the old roots; the fourth or fifth year they will blossom in perfection: Such as are good, are to be brought into the flower-beds for show, when the more indifferent may be planted in the long borders. They need not be transplanted but once in three years, but observe to lay new mould over them every *Michaelmas* and *March*.

Lilies and Martagons.

The most curious sorts are,

The Lilies are the

White Lily of Constanti- nople	Broad-stalked white Lily
Striped flowered white and purple	Semi-double white
Spotted white and purple	Striped-leaved single white
Largest double white	Striped - leaved double white
Orange Lily	Many - flowered Orange Lily
Dwarf Orange Lily	Bulb-bearing Lily
Semidouble Orange Lily	Double-fiery Lily
Striped-leaved Orange Lily	

All these *Lilies* love a lean, fresh, sandy, undunged soil; otherwise they are apt to rot. The striped-leaved white *Lilies* make a fine show in winter with their beautiful variegated leaves. The striped-flowered white *Lily*, in order to have it in perfection of bloom, requires a very lean rubbishy soil, and an exposure whereon the sun shines only until ten o'clock: Many of these *Lilies* should be planted in the long and cross borders of the flower-garden, for embellishment; and to supply them, it will be necessary to have nurseries of them.

The

The Martagons are these.

- | | |
|-------------------------|--------------------------|
| 1 The Imperial | Constantinople |
| 2 The white | 11 The lesser do. |
| 3 The white-spotted | 12 The yellow |
| 4 The double | 13 The Ash-coloured |
| 5 The Canada | 14 The Flesh-coloured |
| 6 The red-spotted | 15 The striped-flowered |
| 7 The long-spiked | 16 The very late flower- |
| 8 The greatest American | ing Constantinople |
| 9 The Pompony | 17 The striped - leaved |
| 10 The Polyanthos Con- | Martagon. |

The *Canada*, *Pompony*, and greatest *American Martagons*, are more tender than any of the other sorts, and should be planted deeper in the long borders of the flower-garden; but if they are planted in quantities, or in nursery-beds, they must be covered in winter, to protect them from frost, which is very injurious to them.

The other sorts are in no danger from cold, and thrive best in a fresh, light, undunged soil, especially the striped sort, nor should they be lifted but once in three years.

The *Gladiolus*, or *Corn-flags*, require the same culture; the most valuable of which are the flesh-coloured, the white-flowered all around its stalk, and the great *Gladiolus* of *Constantinople*.

The great *Indian Gladiolus* is a green-house plant.



Directions for the Culture of the Colchicums.

I Have treated already of the *Vernal* or *Spanish purple Colchicum*: The other sorts require the same culture, and shew best, when they are planted in clumps in long borders: The best sorts are the early, the white, the purple, the two double sorts, the yellow, which, more properly speaking, is an *Autumnal Narcissus*, though it is reckoned

reckoned by the *Dutch* florists among the species of their *Colchicums*. They should not be transplanted oftner than every third year.

And here I must not omit another *Autumnal Narcissus*, named in the *Dutch* catalogues, *Narcissus autumnalis Liliaceus*, which is properly named, *Narcissus autumnalis major*, *flore Liliaceo*, the great *Lily Daffodil* of autumn: Its culture is the same with the other *Colchicums*, and when planted in clumps in borders, has a very good effect.

The *Dracunculus*, or *Dragon*, for its odd shaped great red flower, deserves our attention: It flowers in *July* and *August*; and in *September*, it may be planted out into shaded borders, which should be well defended from winds. Those flowers, which have their plant leaves striped, are very beautiful.

Having thus gone through the *Vernal*, *Summer* and *Autumnal*, *Annual* and *Perennial* flowers, and their several cultures, I shall, before I conclude, give some general directions to florists, who make the cultivating these flowers their chief business; having seen much of their culture in *Holland* and *Flanders*, I shall think myself happy, to be of use in this science, in which I have much delighted, and I hope improved; and of this they may benefit, both to credit and profit; as the taste for flowers, and more particularly for *Hyacinths*, *Oriental Narcissus*, *Tulips*, *Anemonies*, *Ranunculus* and *Auriculas*, has much increased within these few years.

An undertaker in this way, must expect to be considerably in advance, before he can expect any return; and to visit *Holland* and *Flanders*, to be informed of their improvements, as I have done, which will well answer his purpose.

The first thing necessary to be considered is the soil and situation, where should be plenty of cow dung, sand, tanners bark, and a dark, grey, sandy, virgin soil. These materials properly used, and well mixed, comprehend the best composts necessary for bulbous flowers, their proportions you will find where I have laid down the culture of the respective flowers.

Whatever

Whatever extent your gardens are to be of, let that for your seed be separated from that where your flowers are to blow; the whole to be inclosed with high walls, the only sufficient fence in our climate; your subdivisions may be made by yew hedges, which in such places, are better than any other; you may also have some of holly, but by no means of thorns: The situation should be tolerably flat, but not wet, and be well exposed to the south-east, south and south-west rays of the sun, to be protected, as much as possible, from the west, north and east winds, by large trees at one hundred feet distance every way from the walls; with a pond or basin of water well exposed to the sun, as water impregnated by the sun's rays, excels any other for the garden use.

The next necessary article is a compost yard, whose situation must be well exposed to the sun, and paved that the salts of the compost may not be washed and absorbed in the earth; and its situation near the garden, to be fenced in, and of an extent sufficient to contain the variety of composts, which will be necessary to answer the succession and variety that may be necessary, with the rotted tan for your *Hyacinths*, *Oriental Narcissus* and *Persian Ranunculus*, whose beds should not only be covered to the depth of four inches over the surface, but should also have four inches of tan laid to the sides and ends of the beds, to the extent of two feet, to prevent the frost from coming to their roots.

A good florist should never have less than three years compost by him, and their different heaps marked with long poles, bearing the names of the flowers they are intended, with the date when first laid down; observing to have heaps in succession for three years at least, which will not be a difficult matter, if attended to at first setting out.

The next thing necessary for a gardener is, a root-room, to be constructed in extent as may suit him, which must have windows in the end to the west, and in the north and south sides; and the east end should have a large door, to take in boxes or chests of roots, as they come packed up: And in this room, there should be shelves on the two sides by the windows from top to bottom, for to receive drawers, divided so as to receive the different

different sorts of *Tulips*, *Hyacinths*, *Ranunculus*, *Anemonies*, and *Polyanthos Narcissus*, properly labelled: This room should be so situated, as not to be too much exposed to the sun, whose afternoon rays would be very proper for it: The *Anemonies* and *Ranunculus* boxes should lie near a fire, in case of violent frosts.

The drawers in this root-room should be no more than five inches deep, that the roots may lie single, and not in heaps, one upon another, and very close at bottom, but as airy above as may be, that the air and wind may have free access; upon these shelves and drawers, there should be folding leaves of wood, and cases trellaced with wire for air, and well secured, to exclude too busy hands.

DISSERTATION

On the CULTURE of

FOREST-TREES.

THE Process I shall lay down I do not pretend to give as new, or what was never before practised; on the contrary, I have known it in use by many, and their success, as well as my own, for forty years and upwards, engages me to recommend it to all. To that success I appeal; I claim no other praise; I court no other merit, so I shall proceed to direct you how to raise trees in woods from seed, and how to manage them afterwards, until they come to be cut down for use, to the greatest advantage.

It is the opinion of many persons, that before they begin to plant their trees in the wood-way, they must make large nurseries to fill these grounds from the seed beds. According to those directions they must be transplanted from the seed beds into the nurseries, and from the nursery into the woods, where they are to continue till the axe cuts them down. In support of this opinion they further say, that every time a tree is transplanted, it acquires a new set of fibres, whereby it sucks more juices than trees, which have not been transplanted. This I own seems very plausible at first; and I followed it for some time, till I found by experience its falsity. What induced me principally to follow this practice, is that certain rule in agriculture, that the more we cultivate the earth, and dress it, the more it gives us; from whence I argued, that the best method to prepare

pare ground for Forest-trees, was to dress and clean it well before I sowed the seeds; but this rule, though universally given, has its exceptions. With respect to the kitchen-garden, it holds for legumens, and roots of all kinds, which are the produce of a day, and are gone to-morrow; but in forests and woods, time and experience taught me another rule, for the more I digged, the less I reaped.

I shall first show the faults I committed in planting my woods; and next how I amended them, and what my success was. As the trees I transplanted in or near my gardens had not the desired success, I therefore immediately resolved to sow great pieces of ground in the wood itself with tree seeds. This I did with great care. In most of these plantations I took out all the Junipers, Broom, Brambles, with every other plant that I thought would be hurtful to my young trees; I spaded and laboured the ground with great care, and very deep, whereby I thought I might have great success; but at the end of some years, I was convinced of my error, and found that extraordinary culture was the occasion of the ruin of my plants. It is usual indeed to advance into expences to gain by it; but here the expence I bestowed was the occasion of my loss.

If therefore we would succeed in planting trees whatever the soil may be, we must imitate nature; and in plain ground where Thorns, Broom or Junipers, are wanting, I would first of all sow the seed of those plants, some years before I sowed or planted the seeds of my Forest-trees; for those bushes protect the young trees from severe frost in winter, and from the too great heat of the sun in summer; and a soil that is thus covered, or but half covered, with Junipers or Broom, affords an excellent protection for these young trees when they first come up from the seed.

In planting out some Firs I had a remarkable instance of this. The Firs were but two years from the seed. The beginning of *October* I planted a great number of them in a spot of ground pretty much overgrown with Whins: at the same time I planted a like number upon a neighbouring piece of ground that was entirely cleared from Whins: The effect was, that every one of these trees

that I planted among the Whins, grew to great perfection, and the Firs that were planted upon the spot of ground that I cleared of the Whins, were totally destroyed by the frost of the ensuing winter. This shows you what protection is necessary to all young planted trees, particularly Firs, of which I shall speak more fully when I come to treat of that article.

With respect to the sowing of tree seeds in woods, the following observations assured me of the success of these experiments. I had two pieces of ground, of about six acres each, sown with Forest-tree seeds; they were both inclosed on all sides with underwood hedges, such as Thorns, Brambles, &c. planting them as close as I could, to save my seedling plants from the irruptions of cattle; one of these inclosures I dug very well, and sowed it in patches or pieces; one piece in the middle of the inclosure I sowed with tree seeds, another piece I sowed near to the hedges with the same; what I sowed in the middle, came up but thinly; but what I sowed near the hedges grew very well for the first and second years. I did not perceive, or did not mind the difference between what was sown in the middle, and what was sown near the hedges, until the third year. Then I observed a considerable diminution of my young plants, which were sown in the middle part of my inclosure; and I further observed in the fourth year, that by the drought of every summer, and frost of every winter thereafter the number of my plants was considerably diminished; and the winter of the sixth year, being extremely severe, finished them altogether, whilst the beds or spots which I sowed in this inclosure by the sides of the hedges, were strong, healthy and vigorous, some of them having grown four or five feet high. This served to show me, that the good success of those beds which I sowed near the hedges, was owing to the cover those hedges afforded the young plants; but in the middle thereof, where there was no shelter nor protection from the severities of the weather, the plants failed. To remedy therefore this inconvenience, I caused two ditches to be thrown up, crossing the middle of this inclosure at right angles, and planting the tops of them with thorns, brambles, poplars, and underwood, in form of hedges;
by

by which means I prevented the loss of a good many of my young trees in the middle of my plantation, which I could not have effected otherwise.

The other inclosure I spoke of, contained six acres, three of which I dug very well, in expectation of a fine crop. The other three acres I suffered to lie as I found them, covered with Junipers, wild Thorns, Broom, some scantling Whins and Ferns, and other Brushwood. I sowed the best part of those two pieces of ground at one and the same time. In that piece which was not dug nor drest, I opened the upper sward, and by a thrust or two of the spade only, put in my seeds; and indeed I must own I was a little sparing of them, being very uncertain of their success. I even was scarcely at the pains to use a spade, but thrust the seeds below the Junipers with my hands, and covered them as well as I could. But in the other three acres which were dug and drest, I sowed the seeds of the trees very thick, as in my apprehension, from the labour I had used, I could not fail of succeeding. The event however was very different from what I expected. In the drest piece of ground, there came up a great number of fine young oaks, and other trees, which, in a little time after their first appearance, began to diminish; and if I had not given particular attention to them, they would have gone off altogether: while, on the contrary, the other three acres of uncultivated land, in which Broom, Junipers, with other Brushwood grew, was a perfect wood of young oaks, and other trees, which grew to great perfection, and came in four years time to be four or five feet high. This observation shows better than the former the necessity of a cover for young trees; for those that were sown in the cultivated pieces of this open inclosure, could no otherwise be preserved than by planting among them cuttings of Thorns, Whins, Poplars, Saughs, &c. to protect them from the dangers of summer's heat and winter's frosts. Wherefore, to have a good wood in the fields, the most difficult thing is to find a sufficient cover for them; and to obtain that, you must allow a field to lie waste for ten or twelve years, that the Thorns, Brambles, Junipers, and other underwood, may grow up to protect the young trees. On the other hand, in culti-

vated places, you must fall upon some method to make covers grow as much in two or three years, and to give shelter to the earth, and what is sown therein, as if the same had never been cultivated.

I have made many experiments of this nature, by sowing Thorns, Junipers, &c. with the seeds of trees, but this proved all ineffectual; for many of these seeds require to lie two years in the ground before they come up, and consequently can be of no use to these young trees that come up the year after sowing. The best seeds for that purpose, are the seeds of the *Marfaule*, or *French Willow*, or what is botanically named *Salix Alpina, alni rotundo folio argenteo, repens*. It has round leaves, indented on the edges, and grows very quickly without any culture. In wet grounds, the cuttings of all sorts of Willows, and black and white Poplars, will grow very well; but for dry grounds, Thorns and Elders, and the above named *French Willow*, with some dwarf close growing Whins, are the best; and it is certain that the roots of this underwood will do no harm to Oaks or Beech, because the roots of these trees run farther down than the roots of the underwood; and when these trees grow up, they choak and kill all underwood below them.

It has for a long time been the constant practice, to make experiments to know the advantage that arises from the culture of woods and forests; and for that end I caused to be sown in my garden some seeds, of the same trees that I sowed in my woods. The latter I left to nature, but those in my garden were cultivated with the greatest care and art possible; the effect was, that the Oaks I sowed in my garden had stems eight feet high, and two and a half inches diameter at the bottom; while those in the fields had stems about the bigness of my finger, and were but three feet high; and the Oaks in my garden had heads in eight years which served as a sufficient cover to their roots, but those in the fields had no heads to cover their roots. Encouraged by the success my trees had in the garden, I had recourse to another experiment, which was, to inclose a part of my woods, and there to bring up my trees with the same care I did in my garden; and when I found the earth was too stiff or too cold, I burnt a vast deal of the cuttings and branches

branches of trees, and dug the earth two feet and a half deep, making it very fine, and I mixed the ashes with the soil: but in this I found myself also mistaken; for at the end of three years my trees were rather worse than before, and I was obliged to give up the experiment.

For this ill success several reasons may be given. The first year, after dressing the ground in the manner above-mentioned, I had many enemies to encounter with, such as birds, mice, &c. and such a profusion of weeds, that I was continually obliged to be hoeing with instruments, or weeding with my hand. It was then I remembered, though too late, that gardeners, when they enter on a new spot of ground, expect but small crops for the first three years, until the weeds be entirely rooted out. But this was not the greatest inconvenience with me; I wanted water for the young plants in the summer-time, as the continual working among them, in taking away the weeds, made the soil very burning and dry, and so loose, that the cold easily penetrated to their roots, and a north wind, accompanied with a severe frost, about the beginning of *April*, which was preceded by a good deal of rain, did all my plants an irreparable injury.

Nevertheless I did not give over the project, but endeavoured to remedy the evil that the frost had done me, by cutting off all the dead or dying parts of my plants: This had a very good effect, and as I had but a small quantity of water to give them, I reserved it for a more pressing occasion. I diminished the number of my weedings, lest that by often weeding I should have dried the ground too much about them. The success was this; that in *August* my plants resumed their vigour, but still were far from those which grew in my garden; I then pruned them a little, and gave them rest for that year.

Next year I gave them two weedings, and there was a piece of ground of about a quarter of an acre, which I forgot to weed at all; and this forgetfulness taught me, that these plants which had not been weeded, grew equally well with those which were fully weeded, and many of them excelled them; from which I learned, that the more you want to extirpate weeds, and dress any spot of ground which you want to turn into woods, or forests, the more you cheat yourself; especially in weeding trees

twice a year, which besides the real inconveniencies of exposing their roots to the parching heats in summer, and to hard frosts in the spring following, is most expensive, without being of the least advantage to the trees themselves; therefore, as it will be proper to substitute something in place of weeding, to enable us to attain the desired success, I know no method so proper as this, *viz.* to cut all your young trees down within an inch, or an inch and an half of the surface of the earth, slopeways, that the rain may not settle or rest upon the under part of the trees. This method, simple as it is, experience hath taught me to be of infinite advantage for accelerating, by many years, the growth of all plantations of trees; suffer me, therefore, to give you an accurate detail of my management in this important subject.

All earth may in general be reduced to two sorts, light earth, and strong earth. If you sow in a light earth, you may dig or plough it, and the lighter the earth is, the less will be the expence; and you may sow the seeds of trees just after the plough; but those kinds of soils being generally burning and dry, you must not take the weeds from them the following summer, because these keep a coolness about the roots of young Oaks and Beech, in the hot season, and hinder the hot rays of the sun from scorching them; and when these weeds come to die in winter, they hinder the frost in that rigorous season from piercing to their roots. In short, in a light soil, trees require little or no culture. I have sown a great many acres of this kind of ground with great success, for the roots of the young trees extend their fibres easily, whilst the rain and dews get as easily down to them, and the seeds here sown want nothing but a light cover of earth to make them succeed to your fondest wishes.

But it is more difficult to propagate trees in strong clay soils. There the labour of ploughing and digging is useless, and very often hurtful. The best method I know to sow tree seeds in such soils, is to dig pits with your spade the summer preceding the autumn in which you intend to sow them, that the ground may thereby be a little mellowed by the sun and air, and therein sow or plant your seeds, with a suitable cover; you must not
leave

leave them to themselves, but visit them often, observing if they have come up the first year, and the second year take notice if they have grown stronger than the first, and so the third year; and if they grow stronger and stronger from year to year, do not disturb them; but it very often happens, that after the third year they diminish in their growth, and stunt (as the gardeners term it.) In the fourth year they do the same; therefore the fifth year, in the month of *March*, cut them quite down to the ground, in the same manner I directed formerly, and they will grow again with great vigour, and save you a great number of years in their growth; for the young tree being left to itself in the strong soil, its tender herbaceous fibres cannot penetrate into the soil, the juices stagnate, which you will perceive by moss and knots growing upon the bark of its stem, and the tree itself is deprived of the nourishment it should have, whereby it produces nothing but leaves instead of growth; but when the stem of the tree is cut down, the whole force of the sap descends to the roots; they open their germes, and act with great vigour against the soil which opposes them, where, when they come, and have also established themselves, they will send up a stronger shoot the first year than the former shoots of four years old, which you cut away; and of this I had so many repeated instances, that I give it as an approved rule, and can assure my readers, that it is the best way to cultivate woods in clay grounds.

In a soil which is firm, without being too hard, it will be sufficient to cut the young plants once only; and I had a great many plantations in my own woods, planted in a clay soil, cut once only, which have made very fine trees; but in the other places, where the soil was hard and stiff, observing my trees did not grow after the second year, I cut them down, and four years after I was obliged to cut them a second time. I shall here mention another experiment I made, from whence I found the necessity, in some cases, of cutting young trees twice.

Twenty-two years ago, I made a considerable plantation of several kinds of trees, such as Ash, Elm, Planes, &c. which I transplanted when they were pretty old. The

first year after they were transplanted, those which held pushed pretty vigorously, the second year they grew weakly, and the third year they languished very much. The trees that suffered most, were those that were oldest when transplanted. I now perceived that their roots had not strength enough to support their heads, nor the shoots they had made the first year after transplanting. This determined me to cut them down; and I performed the like operation upon the smallest ones. This first cutting recovered my trees for the first two years; but in the third I perceived a great diminution in their growth, which I attributed to the inclemency of the season; but I soon perceived this was not the cause of their decay; for the two years after that I left them uncut, they still continued diminishing in growth, which determined me to cut them down a second time, without which I should have lost all my trees; for having left some uncut a second time to try them, these I entirely lost. The soil in which I planted these trees had not been cultivated for the space of twenty years before, and it is now fourteen years since I cut my plants, and their leaves are as green, and their shoots as vigorous as if they were in a nursery-bed, which is a certain proof, that the cutting down of trees is the best culture they can have in whatever soil they grow, and is the surest method to establish their roots, to which every planter should principally attend.

The authors who treat of agriculture, particularly those who treat of the planting woods or forests for profit, or of planting trees in other forms for pleasure, are often mistaken in their thoughts on this subject. Many of them direct to take care of the tops of young plants, in order to have a great forest of trees in good order. This advice may be good in particular cases; but it is generally true, and I can assure my readers, from many repeated experiments, that there is no method so certain to make trees have strong, lively, and straight stems, as to cut them once or twice, if required, down to the ground, as has been directed; and I have often examined the stems of trees which have been raised from seeds, with the greatest care, and found that they have never been so strong, so healthy, and so vigorous, as stems of
the

the trees that have been cut down upon the appearance of the failure of their growth, and which have afterwards sprung from the root with great vigour; and nothing is more conducive to recover trees, whose stems have suffered by frost, or any other accident, than to cut them down in the manner above prescribed.

Before I enter into a detail of the culture of particular trees, permit me to make a few necessary remarks on the culture of some, and the best method of sowing them. The Oak and the Beech may be sown in places quite uncultivated, with success; the Oak particularly. The Beech delights in a light soil; for if it is sown in clay, or where the ground is very stiff, the seeds cannot germinate, and very frequently it sends up its root above the young stems, which loses them altogether. But the Oak may be sown almost in any soil, having strength enough to send down its root any where; but most other trees should be sown in nurseries, from whence they may be transplanted out for good, when they are two or three years old.

You must shun as much as possible to plant Oaks in the neighbourhood of Pines, Firs, or Beech, or of any other trees which thrust their roots deep into the ground; but you may plant them to advantage near any trees which spread their roots, and do not run far below the surface. You must likewise observe, never to sow woods, but in those seasons when the seeds of trees are very plentiful, and are fully ripened, and then take a particular care that birds, field-mice, and other vermin, do not attack them; for which you must set traps on all occasions, which is the most effectual method to destroy them. You must be no less careful to prevent the intrusion of cattle into your nurseries, or your woods, by planting hedges of Thorn, Poplar, &c. or dead wood hedges. But the best method of any to protect them from the irruption of cattle, is by making ditches, facing them up with stone, and upon the top thereof planting thorn hedges, intermixed here and there with some Hollies, which will still be a greater security to what is planted or sown within.

I proceed now to the culture of particular trees, and begin as follows.

The



The Oak.

THIS monarch of the woods is best raised from its seed, the Acorn. Authors have distinguished these into several sorts, but the most profitable is that we call the *Engliff* Oak; and when these are designed to be planted in woods, the sooner after the seeds are ripe, the better; the best Acorns are had from *England*.

There are three different ways of planting them, which I shall here take notice of. The first and most profitable is, when they are planted in the places where they are designed to stand, in woods, in short healthy ground, in the neighbourhood of Junipers, short dwarf Sauches and Ferns, and scantling Whins. There you have little else to do than to open the soil with the spade, thrusting the small end down into the earth, four or five inches, turning it round several times to break the mould, and a little of the sod above, to allow the young stem to come up freely. Above this, towards the winter, you must lay an inch and a half deep of earth, to protect them from the frosts, and when you perceive them coming up in the spring, and have too little earth above them, give them half an inch more. In this way they may be planted pretty thick, and when they grow up you may weed them as occasion requires; and this may be done a second time, when the trees begin to grow more full, and their heads begin to meet together: These young trees are always of use in country affairs. I am certain from many experiments, that this hardy method of bringing up trees, is best for their future growth; for here they get in all kinds of soils, and if by chance you put them into a better soil than that wherein they were sown, they will thrive the better.

The Acorns should be chosen from such trees as are tall, straight, well thriving, and well growing. Those of Pollard trees should always be rejected; by Pollard trees, I mean such as are crooked and small, and are fit only for small country uses; those, tho' they produce most Acorns, are not to be chosen for seed. You will have

have in your plantations abundance of these Pollards, although you do not sow their seeds; for in large woods it is impossible that every tree should thrive.

In *March* or *April*, after you have planted your Acorns, you will observe them to peep above the surface, when you are to take care that the seed be well covered. Your plants this year will probably make a considerable progress; if so, you may leave them to nature. The second year, if you find they are still thriving, it is a certain sign they are rooting well. Towards the end of this year, if you think you have planted them too thick, you should thin them, by removing some of the intermediate plants; which should be immediately replanted where you intend they should continue, before their roots become dry, otherwise they will not grow; and if they are to be sent to a distance, be sure to lift them with as much earth as you can, binding about them wet moss, to keep them moist. This second year you are also to observe whether your Oaks come up forked, that is, with two stems; when the weakest must be entirely cut off. The third year if you perceive their stems knot, and a light coloured mossy scab come upon them, you may be assured your trees are not thriving; therefore they are to be cut down to the ground in *March*; this, will send the force of their sap to the root, and make it establish itself, so as to send up a healthy shoot.

By planting these trees moderately thick, they grow better than when the distance is greater, as one shelters another, and bids defiance to all bad weather. 'Tis certain many plants out-grow another, and that their spreading boughs may destroy the weaker; but the removal of this evil you have in your power by thinning them. I would therefore never plant Acorns, at a greater distance than four feet plant from plant, as you always have it in your power to give them at any time such a distance as their encrease of growth may require.

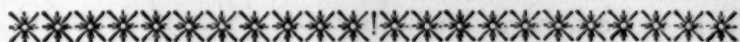
If you design to plant in the wood way, where cattle do not feed, the grass will twist about them, and prove of bad consequence. Therefore, the year before you plant your Acorns, dig pits two feet square, and two feet and an half deep, laying up the soil to the summer's sun and the winter's cold, to mould. In *October* or *November*,

ber, plant your Acorns into these pits two inches deep; removing all weeds, and the grafs that grows within the pit, and the plants will come up in *March* or *April*. Such grafs without the verge of the pits, will be of great use, in giving shelter to the young trees. This method of planting Oaks, has wonderfully succeeded with me; and, I observed there was less occasion for cutting when planted in this manner, than in the way which I first mentioned; and I advise where ploughs cannot go, to pursue one or other of these methods.

The third and last method of planting Acorns, is by spading and ploughing the whole ground, and sowing the Acorns with a drill plough. This method pleases a great many people, but it is not so natural as the two methods I formerly proposed. It is true, indeed, you can draw them and thin them; but this work must be done with great caution. The good proposed in planting them in the two first methods, especially in grounds where there is not much shelter, is, that being planted moderately thick, they may cover one another from the severities of the weather. As your plants will probably come up very thick, you must, during the second year, weed in such a manner, that the plants may be three fathom from each other, and four feet row from row. Those which you take out now may be planted in avenues and vistas for pleasure. Four or five years after this, you may again thin them to a greater distance; what you take out will sell for Pollards; and you may continue thinning them at different times in this manner, until you leave your Oaks twenty, twenty-five, and thirty feet distant, when your plants will become respectable, stately and strong, and will themselves be able to subdue whatever is below them. But to bring these plants to this noble state, you must observe a few things, particularly, That during the first twelve or fourteen years of their growth, you suffer no cattle to brouze among them till they are five and twenty years old: That by all proper means you encourage them to grow tall and straight, permitting none of them to fork: That in the autumn, when their leaves begin to fall, or in spring, before they begin to bud, you take off many, but not all their side branches, except you perceive the laterals become too luxuriant, and run away
with

with the sap that should go to the top of the trees: And, lastly, before you make your plantation, that you inclose the ground with hedges or rows of trees ten deep, or more as you think convenient, to protect the young trees from the injuries of the weather.

The uses of this tree are so commonly known, when it is fit for the axe, that it is needless here to repeat them: but there is one particular which deserves your utmost attention, which is, that you never cut down these, or any trees, in the summer time, when the sap is flowing: for the timber of the trees that are cut at that time, will never be so fit for any purpose as those trees that are cut in winter, when the sap is at rest. This is an unerring rule, which you must constantly pursue. Those persons who deal in Oak-bark object much to this, that they cannot get the bark so easily off their trees in winter, as in summer. 'Tis true it is so, and their objection against felling trees in winter is very just; and it is equally certain, that the bark taken from these trees in summer bears a much higher price than that taken off in winter: but to please the bark merchant, you have no more to do, but, the summer before you intend to cut your Oaks, peel off the bark from the trunk of the tree, and suffer the tree to remain uncut until winter, which will do it no hurt, though the bark be taken off, nay, though it were to stand for two years afterwards.



The Beech.

THIS tree is propagated from seed, which is called *Beech-mast*, and it may be sown any time from *October* till *February*. The mice are so fond of it, that it is with great difficulty it can be preserved from them: The best method I have found to prevent the vermin from injuring the seed of this tree, is to sow a good deal of foot with it, the taste of which they abhor; and by this means your seed will be preserved. It delights in a rich loamy soil, where it will prosper wonderfully. It will prosper likewise upon the declivity of chalky or gravelly hills, particularly if they are dry; but if you plant it

it in wet or clayish grounds, it never will become a tree; there it grows crooked, wind-waves, cankers and decays; but in the soils I have just mentioned, it grows to great perfection. When you design to plant them out from the nurseries, you should chuse a spot of ground to plant them in, much of the same nature with that wherein they were raised, otherwise both your expectation and labour will be lost. They have a leaf of a fine green colour in summer, and all winter their leaves remain upon them, and become of a handsome red colour; so that when they are planted near firs, they entertain the eye with a very beautiful variety. When you transplant them from the nursery beds into the places where they are to remain, take particular care not to over-prune their roots, and be also careful not to plant them deep, which, in making all plantations from nurseries, you should particularly have regard to; for there are more trees lost by being deep planted, than by any bad management I know; and I rather would be obliged to bulk up my trees with earth about the roots, that run the risk of planting them too deep.

The Beech requires almost the same culture and management with the Oak, with this essential difference, however, that though the Oak will thrive almost in any soil, this will not prosper in any but those I have above directed. It makes pretty hedges in large wilderness quarters, and may be kept in a regular figure, if it is clipped twice a year. Its timber is of great use to turners, and for making chairs; and the Mast, when you have great plenty of it, is excellent for feeding of swine or deer.



The Elm.

OF this tree there are several kinds, but I shall first treat of what is called the *Scots Elm*, of which there are many of great magnitude and great value. This is what Mr. *Miller* in his dictionary calls the *Witch Elm*; and I agree with Mr. *Evelyn*, who thinks it the *Atim* of the ancients. This sort of Elm is propagated by

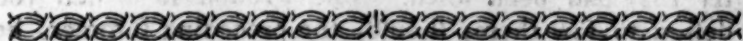
by seed, of which they produce, in favourable seasons, a great crop. The seed is ripe about the second week of *June*, and must be immediately after sown; for they will not thrive if they are kept long out of the ground. To perform this in the best manner, you should trench a piece of ground in *March* preceding, conform to the quantity of seeds you intend to sow, in a shaded place of the garden, where I observe they grow better than when the ground is much exposed to the sun; observe, however, that the soil is a good free loam, otherwise I assure you, from experience, they will not thrive well. As soon as your seed is ready for sowing, rake the ground fine, then take off a good cussing, and water your ground below, upon which sow your seed; this will make them germinate quickly; and in case you have many beds to sow, the moisture of the earth will keep the seed from blowing off, until you have covered your whole beds; afterwards draw on the earth with a rake, and drill them over with a short tooth'd rake; keep them clear from weeds; and if the weather is extremely parching, you must water them. When they are about half an inch grown up, it will be proper to riddle on a little earth above them; this will keep them fixed in the ground, and prevent the frost from throwing them out of it the subsequent winter; during which time if the frost is very severe, you may cover them with pease haulm, which will give great protection to your plants: And in summer, if there be any drought, nothing will preserve them so much as giving them plenty of water. During the first two years of their growth, you must keep them very free from weeds. About the end of the second year they will be fit to transplant into the nursery, where they may continue for four years, until you plant them out where they are to remain. In doing of this, you must be very careful not to bruise their tender roots; and that the pits into which you are to set them, have been dug a twelvemonth before you set in your trees, that the earth may be moulded with the sun and air; and likewise take care not to plant them deeper than they were when set into your nursery; but, above all, be sure that the ground is good upon which they are planted, otherwise they will make a very indifferent figure, become mossy in
their

their skins, hide-bound, and go off altogether; and cutting them down, which is a remedy for most hide-bound trees, will do them no service; whereas, if they are planted in a good rich mellow loam, they will thrive exceedingly. Some years after they are planted, to enliven their growth, you should dig the ground about them, lay on a little well rotted dung, and sow Turnips and plant Cabbages. I have found this culture add so much to their strength, that in twenty years, after being so used, they have been fit for cutting down, and appeared like trees forty years old.

If, notwithstanding all your care, you perceive that your trees do not grow to your wish, I have used a method, which has had an excellent effect upon them; that is, early in the spring, whenever you perceive your trees are hide-bound, take a garden knife, and within two feet of the top of the tree to within a foot of the ground, make a large rut with the point of the knife, in a straight line; and do the same likewise upon the opposite side of the tree. At the rising of the sap your trees will bleed a little, whereby they will be relieved from their disease. I have cured trees of this disease which have been ten or twelve years planted where they were to remain; for bleeding often gives vegetables the same relief as it does to animal bodies. When they are cut down, there is no tree excels them for making chairs; the way to use them for that purpose is thus: Cut down the trees in *October*, bark them, and hew them out in what fashion you think most proper for your purpose; lay these logs in running water, but not in ponds or ditches, where the water stagnates; secure them from being carried off by the stream, and let them remain here until the end of *March*; then take them out of the water, lay them in some airy place to dry, but not near a fire; in the summer after they will work with the carpenter very well, and by the different colours of their veins will appear extremely beautiful. There are some persons who lay them only six weeks in water, and then take them out for use; but you may try both ways, and choose that which suits best.

The other sorts of Elms seldom or never bear seed; these you must propagate by layers, which is thus performed:

formed: Plant in your nursery the old stumps or roots of those trees which have been cut down, leaving a small portion thereof above the ground, from whence will proceed a vast number of small shoots, which should be laid down, and covered with a good portion of earth during the winter; in the spring, such layers may be taken from their mother plant a year after they are laid down, and then be put into the nursery, from whence, in four years after, they may be transplanted out into such places where they are to remain, observing always that the ground where they are to remain, be a good, free, rich loam; and I always chuse to propagate from layers, rather than from suckers, for these I am sure never produce good trees. Having given you directions how to make hedges of the Elm, I now proceed to the culture of another tree, which makes very fine hedges, especially in large wilderness quarters.



The Hornbeam.

THIS tree is sometimes raised from the seed; but as it seldom produces much seed in this country, it is better and more expeditiously raised by layers. Lay them down in autumn, and in the autumn following, they will be fit to take off, to be planted in the nursery, the ground of which was well dug. They may remain here for two or three years, to acquire strength, before they are planted out where they are to remain. If you design to plant them in hedge rows, you should encourage all the lateral branches to grow, for this feathering of their branches will soon make a hedge. If, on the other hand, you design to plant them out for variety in your woods, you must treat them with respect to the pruning of their branches, as I have directed for other trees.

There is one sort of tree called the Hop Hornbeam, which I prefer to the common sort, for making hedges, because its leaves come entirely off the end of autumn, and there is not that litter of leaves continually about its roots, as is the case with the common Hornbeam.

H h

There

There are four or five different kinds of this tree, but as the Hop kind and the common sort are most used, it is needless to mention the rest.



The Ash.

THERE are six different kinds of this tree; but I shall here treat only of those which grow well. The common Ash is propagated only by seeds, called Ashen-keys. This seed should be gathered when the leaves drop, in a dry day, and laid up in a heap to sweat; this is a great advantage to their vegetation; for I have often observed, that the seeds used this way have sprung the first season, when the other seeds, which have been kept dry in lofts, did not spring till the second year after they had been sown. The ground in which you design to sow them, should, the preceding summer, be turned, and made very fine; and you may take a crop of Turnips from it, which also will help to open it, and they will be off time enough for you to sow your seeds. In the month of *November*, sow these beds very thick with the seeds, and the following spring and summer keep them clear from weeds; and if the weather is very dry, water them, even although your plants are not come above the ground. Next spring they will appear, and in summer it will be proper to prepare nursery beds for them, in a piece of good rich ground; for they must stand no longer than the following autumn; because if they grow well, being thick sown, they soon would choak one another. Your nursery must be of the same kind of ground with that wherein they were sown; for it is certain this tree thrives best in good ground, though it will grow almost in any soil. When you are to transplant them, before you draw them, you must loosen them with the spade; for as they shoot a strong root deep into the ground, they would be in hazard of breaking, if they were not thus loosened. When you have taken them up, you may shorten the strong radical, or top roots; but be very sparing in pruning their lateral fibres. After their removal, you may plant them in
rows,

rows, at three feet distance row from row, and two feet plant from plant, thrusting down the earth to their roots. In summer they must be kept quite free from weeds; and the year after they are planted, if the weather is very parching, you must give them water, which will promote their growth, observing particularly to take off all side branches from them. This is contrary to the rule I have laid down in pruning other trees; the reason is, that as the Ash sucks very much, and when young is very full of pores, it thereby imbibes sufficiently to support its stock, and maintain its trunk, without the help of its lateral branches: But in taking these off, you must observe to do it late in autumn, and early in the spring, otherwise your trees will bleed, and suffer much. In this nursery they may remain three years, and then you must think of planting them out where they are to remain. In this particular many people differ. In treating of woods some affirm, that every fourth or fifth tree in the wood should be an Ash: What they mean by this, is hard to say; for I am certain, that no tree will thrive under the drop of the Ash, nor even in its neighbourhood, because it is so strong a sucker, that it exhausts all the nourishment round it; for these reasons, therefore, it was my constant practice to plant out those trees from the nursery, into large woods or plantations, into the best ground I could chuse for them, and all by themselves, at ten square feet distance; and after they have been planted two years, you can easily perceive, by their growth, what are thriving and what are not, what are straight and what are crooked. The sickly and crooked ones should be cut over, to within half a foot of the ground early in the spring, which will induce them to shoot out noble straight stems: for no tree whatever agrees better with being cut down than the Ash. By this culture the straight thriving Ash tree will mount up to a great height, and add beauty to the forest, while the weaker plants form a kind of underwood, which may be cut every eight or ten years, for arbour, hop, and espalier poles, and for hoops, to the great profit of the owners of such plantations.

The *Carolina* Ash, with the Flat-key, together with the *Calabrian* round-leaved Ash, commonly called the

Manna Ash Tree, are equally hardy with the common Ash, and will grow very well in this country, provided they have a little shelter when they are young.

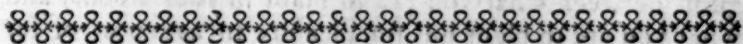


The Plane.

THIS, in *England*, goes by the name of the Sica-more, though I cannot think it the same that of old went under that name. But leaving this to be discussed by botanists, I proceed to its culture, which is much the same with that of the Ash tree. The keys or seeds of it must be sown about the end of autumn; for if they are kept till the spring, they seldom or never vegetate. When the seeds come up, and are too thick, you should draw out part of them, and thin your seed beds, which will make what remains grow the better. From the seed beds you may transplant them into the nursery, giving them plenty of room; and from thence, three years after, you may transplant them into the places where they are to remain. They are not planted out in woods, as most other trees, but they are excellent to be planted for defence of large plantations, or large nurseries, and gentlemens seats, for which use I think they have been the favourite trees of our ancestors. It differs in nothing from the Ash, but that it comes up the first year after the seeds are sown, if they are put into the ground early in the autumn, or whenever its seeds are ripe. This tree is far superior to the Beech, for all the uses of the turner, particularly for dishes, trenchers, and bowls; and when it abounds with knots, as it frequently does, it is used by the joiners for inlaying. I have also seen rooms lined with it; the trees indeed were very large, and had no knots in them; and when it was varnished had a very elegant appearance. When it is used in this way, both sides of the panelling ought to be varnished, because it is very susceptible of being eaten with worms.

This tree being near a-kin to the Maple, I shall here likewise treat of it; but before I begin, I shall just enumerate the different kinds of Plane, of which there are
three

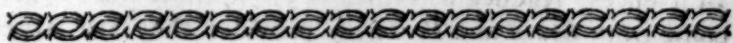
three other kinds I have not yet noticed; to wit, the true Oriental Plane, the Oriental Plane with the Maple Leaf, and the Occidental or *Virginian* Plane. The Orientals are propagated either from seeds or by layers. The first method I should chuse, though the latter will also succeed, but will never make such large trees. The *Virginian* or Occidental Plane, which is nearest of kin to the *Acer majus*, *falso multis platanus*, will grow extremely well by cuttings planted in the month of *October*, and I have seen very large posts of them sharpened at the end for the strongest supporters of espaliers, and continue longer when put in the ground in good plight, than any timber I see used for that purpose.



The Maple.

THE seeds of this tree, being sown in great nurseries, have often produced plants with striped leaves, and have retained their variegation very well, which is not common in other variegated plants, except the *Lotus* or *Birds Trefoil*, the seeds of which, when gathered from variegated plants, come up always variegated.

We have two sorts of the flowering *Virginian Acers*, but that sort, with the largest red flowers about the branches is preferable, chiefly for the multiplicity of its flowers. The *Norway* Maple grows to a very large tree in this country, and is raised by seeds, which it affords in great quantities, and requires the same culture with the common Maple, falsely called the Plane Tree, and is very proper for inclosing plantations of young trees, or for sheltering gentlemens seats from the high winds.



The Chestnut.

THIS is one of the largest and prettiest trees, when rightly managed, that grows. In *Britain* it arrives at a vast bulk, especially the southern parts thereof,

as well as the Oak, which appears from the many large logs of both these timbers that have been found in many buildings in *London*, from *Henry* the 11th's time, till within these fifty years past. And in the northern parts of *Britain*, near *Edinburgh*, I have seen the wooden parts of the roofs of stables and cow-houses, where, by the breath of the cattle, other woods have been rotted, those roofs made of Chestnut trees have remained sound for above fifty years. Those trees, therefore, when properly planted in our woods, cannot fail to be of very great use and profit to the owners. Suffer me, therefore, to be somewhat particular upon the culture of this tree. As soon as you design to plant the nuts, you are to distinguish between what you are to plant in your woods, and what you are to plant out for pleasure in avenues, or for bearing fruit. They require a very different culture, and you must take a resolution before you plant them, which of the different methods you intend, so as not to confound the one with the other. I shall begin with giving you directions concerning those which are to be planted in woods for profit. The proper choice of seeds, is an article of greater importance than many persons imagine; but as upon this depends your success, it will be necessary to attend carefully to it.

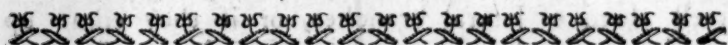
We annually receive these nuts from *Spain*, *Portugal*, and *France*; and we also have them from *England*. The question is, whether we should plant what comes from Southern climates, or the nuts which we receive from *England*, in our woods? One would naturally think, that the nuts which grow here would be more proper to plant out in woods, where they would most probably meet with rougher treatment and harder weather than those trees which are planted near a gentleman's seat, or in a well fenced inclosure. But experience, the mother of all sciences, teaches us rather to chuse those nuts which come from *Spain* and *Portugal*, provided they are large, fair, and well ripened in the woods. Those nuts being larger by half than what we receive from *England*, consequently the tree must be larger also, and the stouter the tree, the better able it will be to bear hardships. A twelvemonth before you intend to plant, make choice of the best fenced ground, and best soil in your woods; dig pits

pits a foot and an half in diameter, and two feet deep; lay up the soil from thence to mould and mellow by the sun and air; and observe, that your pits be eight feet distant from one another. In these pits plant all your good nuts, two inches deep. The good nuts you can distinguish from the bad, by putting them into water: Cast away what swims, but what sinks you are to use. In the spring following, you will observe them coming up; if the weather is very severe, you may lay an inch more of mould above them. The summer following you should take care to keep them free from all weeds, and stir the mould a little about them; and remember that their future success depends much upon the care you take in keeping cattle from their plantations. Early in the spring you should divest them of lateral branches, or if they come up forked, you should take away one of their branches, and leave the other for the wood. In two years you will easily observe if they are thriving; if you find that they canker, and a moss grows about them, cut their shoot down at the first bud above the ground, in a sloping manner, and from that bud, they will soon send up another handsome shoot; for their root has sufficient strength to establish itself in the ground, and thereby to recover the plant; and you are to take particular care not to allow any grass or weeds to twist about the young plants.

The other method of planting them is in rows. From the seed beds, where they are first raised, they are, as usual, to be transplanted into the nursery. When lifting them, you are to take care to cut a part of the top root off, especially when they are again to be removed into the places where they are to remain. They delight in a rich soil, but not in clay, and must be removed from the nursery-beds in two years, or three at most, according to their growth. If you perceive that they do not thrive, but turn crooked, you must cut them down, as I formerly directed, and they will send up a handsome shoot. The trees planted out in this way, will bear fruit sooner than those trees which you planted in your woods; by the taking off their top root, which makes their lateral fibres spread along the ground within the

influence of the sun and of showers, which are the chief principles of vegetation.

The Horse-Chestnut, one of the noblest trees that adorns our woods for beauty, must be treated in the same manner; and the Pavia, or red flowering Horse-Chestnut, which makes one of the most beautiful flowering trees that adorns our gardens, may also be cultivated in the same way; but for the first four years of its growth, should have more shelter given it, in winter especially: Only you are to observe, that such Chestnut-trees as you are to plant out for bearing fruit, should not have their side branches so lopped off as those trees which are planted in woods for timber.



The Walnut.

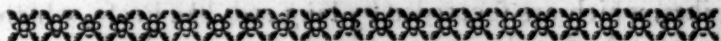
THOSE trees which are planted in your woods, should be sown in the places where they are to remain, and from thence never removed; for if their roots, which always tend downwards, are broken, cut or bruised, it hinders the tree from aspiring, which is the greatest beauty in trees planted for timber. Indeed they will not be so fruitful as trees that are transplanted; but the risk of the operation greatly out-balances any advantage that may accrue from it. In woods these trees should be planted at twelve or thirteen feet distance; for their vicinity to one another greatly promotes their growth. I would here advise to plant some of the black *Virginian* Walnuts, which are brought in great plenty from that country; for these naturally grow erect: But take care, that neither the common nor the *Virginian* Walnut fork when they come up; for no tree is more liable to do so than the Walnut; and I always would chuse to plant them by themselves in a well sheltered situation, in every respect treating them as I directed for the Chestnut. The wood of the black *Virginian* Walnut is invaluable; for by the beautiful enamelling of its veins, when it comes to be cut, it rather seems to resemble marble than wood.

They delight in a rich firm loam, and they will also grow upon the declivities of chalky hills, or stony ground.

It

It is very remarkable in this tree, that the more uncultivated the soil is, the more beautiful is their wood, and better for the cabinet-maker's use than what grows in a richer soil.

If you design to plant walnut trees for fruiting, they must be sown in beds. Two years after, they must be transplanted into the nursery; when they have grown two years more, they will be fit to plant out into the places where they are to remain, and to be treated in the same manner as I directed for the Chesnut; with this peculiar difference, however, that you are to plant the Walnuts no less than twenty-five or thirty feet distant one from another, for the sake of their fruits and the extending of their branches; for it is very observable, that when Walnut trees are planted for fruiting, and have been frequently transplanted, and their radical or top root lopt a little, that not one in a thousand of them grows erect in its stem, but disperses its branches at a great distance from the trunk of the tree; and the more crooked and pervading these branches are, you are sure of the larger crops of fruit. I next proceed to treat of a very beautiful tree.



The Quickbeam, or Roane Berry Tree.

THIS tree, for its beautiful flowers in *May*, and its very handsome scarlet fruit in autumn, yields in beauty to no tree I know, especially if we consider the very erect stature to which in a short time it attains. This, together with its resisting all the inclemencies of our climate, thriving where few other trees will prosper, makes it deserve our utmost care and culture to propagate it. It is of the *Sorbus* tree kind, and is botanically named *Sorbus aucuparia Johannis Bobini*. This tree delights in a moist loose soil, and may be easily propagated from the berries, which it produces in great quantities: These, after picking away the pulp from about them, may be sown in *November* or *March*, where they may continue two years; and afterwards be transplanted out into the places where they are to remain for good. As I said before,

fore, they grow upon any soil, but prosper best where the ground is wrought most about them. The uses of this tree are many: I have often seen good walking canes made of its boughs; and the wheelright and husbandman apply it to many uses: In short, I know no tree so capable to make a large garden pretty, by its delicious flowers in the spring, and its charming scarlet coloured fruit in autumn; and, when ready for cutting, of such general use.

I shall next proceed to the culture of another tree, which likewise yields very beautiful flowers, and the curious enamel of whose wood, richly deserves the carpenter's nicest care. Was it more generally known, it could not fail to be more esteemed, and consequently more cultivated.



The Laburnum, or Pease-cod Tree.

BOTANICALLY named *Citissus Alpinus latifolius*, *flore ramoso pendulo longiori*, of Tournefort. Their flowers are produced in *May* in very long yellow coloured spikes, which are succeeded by long cods like Pease, which include their seeds, and it is from the form of these that the tree receives the name of Pease-cod-tree.

It is propagated from seeds, which are usually sown in *February* or *March*, on a bed of good fresh light earth, covering them with an inch of the same mould; and in six weeks after they will appear above ground. If the weather be dry, you should water them as occasion requires.

If your trees have grown very tall the first year, you may transplant them into the nursery, planting them in rows three feet distance, and one foot asunder in the rows, laying on the roots of these young plants a good deal of straw in the winter time, to protect their fibres from the severities of the frost, and in summer from the parching rays of the sun. In the nursery, if they like the soil, they will grow very fast, and in two years must be planted out into the places where they are to remain; for if you suffer them to continue longer in the nursery, it will
be

be hard to get them up without injuring their fibres, than which nothing is more injurious to these trees. And here I shall give a very necessary caution for all quick growing trees, that the first year after they rise, they must be transplanted from the seed-bed into the nursery, where they must remain no longer than two years; for if they become very tall before you plant them out into the places where they are to stand, they seldom thrive well.

No tree whatever is more hardy, after it is planted out, than the Pease-cod tree; and if it be planted in ground it delights in, it will become very large; some I have sown, grew to such a size, that tea tables have been made of one plank of the wood. The wood is of a bright yellow colour, with blackish purple veins, and far exceeds the prettiest Mahogany I ever saw.



The Lime.

THE first seeds of this tree I ever raised, were sent me as a present from a gentleman in England. With them I received the following letter of directions how to use them:

“ S I R,

“ I have sent you half a pound of Lime-tree seeds perfectly ripe, which is pretty extraordinary, as they seldom ripen thoroughly with us. As a great deal depends upon the directions how and when to sow them, I shall give you a few, which I hope you will find useful. No tree is so tender when it is young, as the Lime: After it is sown, it lies twelve months in the ground before the seedlings appear, and rises precisely within four or five days of that day when in the preceding year it was sown: therefore I would advise you to sow the seeds about the twentieth of May, keeping them clear from weeds, and watering the beds in dry weather, even before they come up. In winter lay a considerable quantity of Wheat-straw upon the beds where you sow them, to protect them from frost, and you will see your seeds come up within

“ two

“two or three days before or after the twentieth of May following. They may remain in the seed-bed two years, and then it will be proper to plant them out in the nursery. Give them plenty of room therein, and let them remain there for four years, and when you plant them out, be sure to give them a rich loam. By following these directions, your trees can scarcely fail of growing to a very great size. Observe one thing particularly, not to plant them deep; for by that error I have lost more plants than any other way.”

Conformable to this direction I managed my trees, and had a good number of the finest plants, raised from seed, I ever saw, far exceeding those raised from layers.

It is remarkable in this tree, that such as you raise from layers will seldom or never produce seeds. Their layers are rooted in twelve months, and may then be planted out into a nursery, where they may stand four years, after which they must be transplanted out into the places where they are to stand, in the same manner as the seedlings above mentioned.

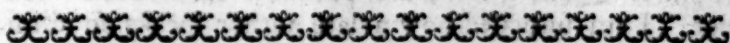
I come now to treat of Aquatic Trees.



The Alder, or Aller.

I Have often heard that this tree has been raised from seeds, but I never practised it. My way of raising it was from suckers, which grow in great plenty in those grounds, where the old trees were cut; but though this be my practice, yet I cannot much approve of it, for the suckers are very long before they become fit for any use. Therefore, the best method I know to raise them is: Take a middle aged tree, which is twiggy about its sides; cut it in pieces four feet long; sharpen the cuttings at the ends, but do not take away the side twigs from them. In the month of *November* thrust them into a swampy piece of ground, two feet down, and the year following you will observe them shoot strong. In two years after this, if they produce no more than one shoot upward, cut that down to within three buds of the place

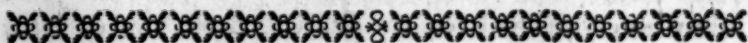
place from whence it shot; and next year, and the years following, you will see the stock send out two or three strong shoots; by this means in a short time you may have a whole wood of them. I have likewise seen them propagated by taking up the old roots of the trees which have been cut, together with their fibres; then split the roots, preserving as many of the fibres as you can, and plant them again, and they will send up a great many noble young shoots.



The Birch.

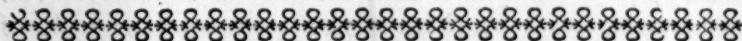
CONTRARY to what Mr. *Evelin* says, and of which Mr. *Philip Miller* takes no notice, I have raised a vast number of these trees from seeds. I bought about four pounds weight, which I sowed in the month of *February*, in a piece of indifferent ground in a nursery in my woods, covering them with a quarter of an inch of mould, for these seeds cannot endure to be much covered. Over this I spread some small cuttings of whins, to preserve the seeds from the birds (who are very fond of them at this season of the year) which, when the plants appeared, I took away. In this nursery they remained two years, and afterwards I transplanted them out into the woods, pretty thick, and took some of them home to make plantations of, near my house, purely for their fragrance; for they emit, after a shower of rain, an odouriferous flavour. In three years after this I observed my plants grow very tall, but at the same time very slender; and those planted in the best ground were the smallest, most crooked, and the most wind-waved; therefore I resolved to cut them down within two inches of the ground, and in about four years after I had the most beautiful plants I ever saw, straight, tall, and strong, and far excelling those which I gathered annually in my woods to make nurseries of. I bought also from the same person some Fir-seed, but that did not come up, which I attributed to its being kiln dried.

The



The Abele Tree

IS only propagated from the suckers, of which you may have in great numbers, by cutting down some of the trees, working the ground about them, and preserving them from cattle. This tree together with the Aspin or Quaking Asp, are produced in the same manner. I am surpris'd how a late author speaks so diminutively of the Quaking Asp. I saw within these ten years a large plantation of these trees near a gentleman's seat in the bishoprick of *Durham*, most of them near forty feet high, without a side branch, which he esteem'd very much, and sold for a great price, to the millwrights and carpenters about the country.



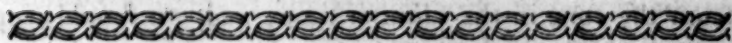
Willows.

OF which there are thirty sorts known to the basket-makers. They are all propagated by cuttings, planted in a moist soil. But there is one particular kind, which excells the whole, called the *Huntingdon Willow*, which comes very soon to be a large tree. These are more properly called Sallows; they grow in rich ground, and, although it is not wet, they will prosper well.

Willows are propagated by short cuttings, but Sallows from stakes or truncheons, seven feet long, which, when thrust into the ground in *October* or *February*, will thrive exceedingly well.

I shall next treat of Evergreen Trees, which are fit to be planted out into woods.

The

*The Fir.*

COMMONLY called the *Scots Fir*. Most authors who have wrote of this tree, have treated it in such a superficial manner, that they either seem not to value it, or, what I rather believe to be the case, they neither know the tree, nor its culture: I therefore think it my duty to give you my own practice in which I succeeded extremely well.

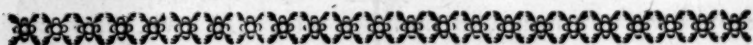
This tree is only propagated from seeds, which are contained in cones or clogs, as they are called, which are ripe or fall from the trees in *December* and *January*, at which time you should gather them, observing always to make use of those cones which fall from the eldest, tallest, straightest and best grown trees you have. There is sometimes a difficulty to get the seeds out of the cones, and if you are not favoured with much sun, which will make these cones burst, it is extremely difficult to bring out the seeds. The method of getting out these seeds which succeeded best with me, was this: In my second stove, where the air was kept up to *temperate*, I spread my mats upon the brick floor, under which there was no heat, the air in the room only being warmed moderately. Upon the mats I laid my clogs, which in about three or four weeks opened, and yielded me plenty of seed. A friend of mine that was present at the operation, objected, that this was very near kiln-drying, which might destroy the seeds; to which I answered that I was not afraid of their being too much dried, as the air in the room was but moderately warm, and there was no heat below them, and that every two days I took out what seeds had burst from the cones; nor was the heat comparable to a kiln, which is warm below, where consequently the seeds must be roasted. The effect was, that when I sowed my seeds they all came up to great perfection, notwithstanding that I had brought them out in this manner from the cones. However, persons that have not the same convenience I had, may open their cones in the sun, which no doubt is a very good method,
and

and what does not open before they are sown, will burst from the cone in the summer time; and you should keep their seeds in canisters, or leather bags, till next sowing season, in a dry open place, where neither sun-shine nor fire heat can get at them.

About the end of *April* prepare your ground for sowing, by trenching it, and making it fine, taking out all stones, and roots of weeds, or grass. If this be done in *October* preceding, it will still be so much the better; and if you lay it up in ridges after it is so trenched, it will be still of greater service. The ground should be of a middling nature, neither too poor nor too rich, too clayey, nor too sandy. Take off a pretty good cuffing with the rake, and if the ground is very dry, and no rain like to happen, water the beds from a garden pot, with the rose upon it; then sow your seeds pretty thick; draw on the earth, and dress up your beds with a very short toothed rake, and in two or three days after, riddle on an inch of the same earth upon them. Some weeks after you will see them peeping through the ground, and now is the precise time, when your greatest care is required to preserve them; for at their first appearance above ground, they bring up the hulk of the seed at their tops, which whenever the birds perceive, they fly greedily to attack them, and picking at the seed hulk, they nip off the heads of the young plants, which utterly destroys them. I covered my beds therefore with close wrought nets, supported above the beds with hoops so high, as to be without the reach of the birds bill. This does very well; but there is still a better method, which is to set boys near the beds, from sun-rising till sun-set, giving them pistols to fire, with powder only, which will so frighten the birds, that they will not venture, for some time at least, to come back again. If the weather is very dry, you must water them frequently, which will promote their growth exceedingly, and when weeds appear, you must take them out carefully, because in the non-age of the plants, they are apt to come up with the weeds. In the beginning of *November* riddle on a good quantity of saw-dust, that has been dried some time, or for want of that, bere or oat chaff, which when laid upon the beds, will prevent the frost from throwing the young

young plants out of the ground, and in *April* following, weed the beds of the Firs which have the largest growth, and plant them out in the following manner, which, though directly contrary to the opinion of all authors, who have wrote upon the subject, has, with me, always been attended with great success. I am not for planting out the whole of the seedlings at this time, but such only as are very rampant in their growth. At two years old your Firs must be transplanted either into nurseries or inclosed grounds, where they are to remain. This last method I most approve of. The manner of planting is: In the month of *April*, when you intend to take out the rampant growers from your beds, after taking them out, put down the earth with your hand close by the roots of these you leave in the beds; and if you want to carry them to any distance, have some paped earth by you, that is, some well wetted earth, and tie a layer of it round the roots of your seedlings, which otherwise would dry very fast. If you design to make large plantations, it will be necessary to inclose the ground with fail dykes, to prevent the intrusion of cattle, which may be crossed with other fail dykes at right angles, at every three or four acres. If your ground is bare where you intend to plant them, or if it has very short grafs upon it, you have no more to do, but to make a slit with your spade, set in your plant at the distance of about two or three feet, and put the root of the plant close to the ground. There is little danger of planting this tree too thick, for the rank growers will destroy such as do not thrive, and the under branches fall off when they run high, whereby they prune themselves, and save you that trouble. If Junipers, or any low growing plants are upon the ground, or if the ground where you intend to plant them, is rank with grafs, or tall growing whins, you must plant your seedlings in pits, at a little distance from these under growths, lest they should be choaked or hurt by them; and if you design to plant Oak, Beech, or any other trees amongst them, they should be planted at eight feet distance; for it is almost incredible to think how fast Oaks grow when planted among Firs. I have also planted, with great success, a few of the Cedars of *Lebanon* amongst Firs; but this is not to be done, until the Firs

have become pretty large plants, to protect them; observing strictly, however, not to suffer the Firs to drop over them; and betwixt the Cedars and the Firs I planted Oaks, that when the Firs were cut away, the Oak, which is a long lasting tree, might give suitable shelter to the Cedar.



Of Coppices.

THUS have I gone through most of the trees that are planted either for pleasure or profit. I shall now conclude the whole by a few observations on the raising of Coppices, or small woods, a work the more necessary, as it is in the power of gentlemen of but very moderate fortunes, whilst the culture of large woods requires both extent of ground and expence in management.

Whenever you intend to make small woods of coppices, you are first to inclose your ground sufficiently, so that no cattle may get in to browse upon your young plants, or amongst them. If there is any natural wood in this inclosed ground, you are not to take it intirely away; nor Junipers, scantling Whins, or other low growing Shrubs; but sow the seed of your trees near them, in such a manner as that the under-wood may not choak them when your young plants come up. If the grass is rank, you must pare the surface of the earth at a little distance round the pits wherein you sow your seed, that the grass may not twist round the young shoots of your plants which would choak them. I would always advise, rather to sow than plant your woods; for those trees which are sown, and remain untouched, will in twenty years far outstrip any tree you can plant. Thin your plants when they come to a tolerable height, moderately, but not all at once, for that would let in too much cold air to your plants; but from delicacy on this point, you must not crowd your plants too much; otherwise, for want of a due circulation of air, they will run like may-poles, and turn out good for nothing. Take away all forked shooters, by taking off their
their

their stems; but do not divest your trees of all their side branches, for this would ruin their heads. If your young plants which you sowed, do not thrive after the first three or four years, cut them down, and they will soon after send up good young shoots, which in time will make large trees.

These coppices may be cut every twelve or fourteen years, or may stand longer if you so incline; but no large wood must feel the weight of the axe, till it is fifty years old.

Before I leave this subject, I cannot but regret the universal neglect that at present prevails, in the article of woods and plantations. Oak-woods, formerly our glory, are now scarce known, though our Acorns and soil are equal, if not superior, to those of former times. What effect this may have on our commercial interest time only can discover. I shall just say, that it is far from being improbable, that necessity at last will oblige us to perform what indolence or false taste at present hinders us from executing.

It is indeed matter of surprise, that a culture of this kind, which in a course of years, is attended with so much profit to the planter, or his successors, should be so greatly neglected in this industrious age. One would imagine that interest, if no other motive could prevail, would have the effect to engage many in such a pursuit. —But experience shews us quite a different prospect. Present profit, or present pleasure, is the object of every wish; and there are but few who bestow one thought on the advantages that would accrue to posterity from raising woods and forests. On the contrary, even where such woods are raised, and perhaps in a thriving condition, how often do we see the best trees culled out for some favourable avenue or inclosure; and even the woods themselves mangled and cut down, and the very best and most promising trees destroyed, to form a vista to some antiquated ruin; or, to be still more modern, to some *Indian Pagod* or *Chinese Temple*.

The author of this work sympathizes on so woeful a degeneracy. He hopes the few hints he has thrown out, may have some effect to correct a taste so generally destructive. The rules he has laid down, are mostly

founded on his own experience; and he with confidence can promise, that if strictly followed, they can scarce fail of the desired success.



*An Account of the best Method of planting ELM TREES,
on a cold, stiff, clayey Soil.*

SIR,

I AM much surprised to have seen so little on the subject of planting: Some good directions on this head could not fail of being very useful to many gentlemen who lead a country life, and have little else to do but to improve their estates, and be useful to their neighbours.

My present intention is to inform you of an experiment I made in the year 1757, of planting some *Elms* on a stiff clay, a soil which is, in general, in this country, thought not so well to suit them as others of a lighter and drier nature.

My first business in this grand affair was to lay a plan of operation: accordingly, I marked out the ground, driving a small stake in the spot where every tree was to be planted.

As soon as harvest was over, I hired some labourers, and made them dig a hole six feet square, and four feet deep, wherever they found a stake, throwing the earth which came out of the hole round its edges.

When this work was done, I let it lie in the above state all that winter and the ensuing summer, with an intent that the stiff obstinate nature of the clay should be meliorated by the powerful influences of the frosts, sun, and variable air.

At the end of the summer of 1738, I found I had not lost my labour, when I came to examine the state of my experiment. The nature of the soil, wherever the air could operate upon it, was entirely changed, the clay being much less compact, and approaching nearer to the substance of a stiff loam, being crumbly, though close in its texture.

As soon as I found that my land was thus in proper order for planting, I procured from an honest nursery-man,
a suffi-

a sufficient number of young *Elm* trees, ordering him to mark the north side of every one of them, with some white paint, previous to his taking them up.

This was a precaution some might think unnecessary; but my reason for doing it was, because I imagined that a tree, removed from its native spot, and transplanted into another place, must thrive better, if on being removed, it enjoyed the same aspects as before; and indeed some small experiments I had before made in this matter seemed to confirm me in the opinion.

As soon as I had bespoke my trees, I employed some labourers to fill up the holes above-mentioned, with the earth that came out of them; but I first sprinkled some flaked lime over the bottom of each hole, and mixed lime with the earth as it was thrown in, to the quantity of a bushel for each hole.

When this work was done, and the ground appeared level, with a little spare earth near each hole, I had my trees planted in the following manner.

I began planting my trees about the tenth day of October, and had finished by the latter end of the month.

I caused, in the first place, the roots to be moderately trimmed with a very sharp knife, each root being cut sloping, not transversely, the slope being undermost or next the ground: This was, in some measure, essential to prevent the moisture proceeding from rain from soaking into the wounded part.

Having proceeded thus far, I caused a tree to be set over each hole, upon the surface of the ground, round the roots of which some under-turf earth was piled, and over that the remainder of the natural soil, with which some flaked lime had been mixed.

The upper part of the little hillock, formed round the roots of the tree, was made a little hollow, to convey to the plant as much rain as would be necessary to supply it with a sufficient quantity of moisture.

I then employed the parish-sexton to secure the little mound with brambles, wattled in the same manner as are the graves in a country church-yard; my last business being to apply some long stakes to each tree, by way of supporting it, till it had taken much root.

In this manner, then, I planted the whole number of my trees; and they succeeded to a wonder, for but ten failed; and the bark of these was, on examination, found to have been injured by an afs, which broke into my ground: However, the next year I had them replaced, and the disadvantage was not great.

What is most remarkable is, that my trees stood well the memorable hard frost, without being, as far as I could find, in the least injured.

I well knew, that the only way to defend the roots of my young trees from the damp, raw, under-earth, which had proved fatal to other plantations, was to raise them above it: This I effected, by planting them on the surface of the soil; and such roots as struck downwards found a good warm bed in the earth, which had been stirred and mixed with lime: However, as the *Elm* has naturally a spreading root, the nourishment was chiefly extracted from the upper bed of earth, the main roots being covered by only a few inches of mould, and some of them, at this time, lie quite bare and prominent above the earth.

A great deal depends on staking young trees so securely that they shall not be shaken by every gust of wind, in such a manner as to displace their roots in the earth; for by this means the fibres of the roots of such shaken trees are removed from the surface which should afford them nourishment; and either the tree dies, or the mouths of the roots must again have time so to adapt themselves to the circumjaçent particles of earth, as to be in a capacity of once more extracting their nourishment and food from their common mother.

I am yours, &c.

Essex, Nov. 12, 1764.

X. Z.



THE

T H E I N D E X.

N. B. The Numbers that are expressed by Letters, have a Reference to the Treatise, coming before the Work.

A.

- A B E L E-Tree*, directions for planting, 466
Abbreviations, an explanation of such, as are used in this Treatise, 354
Aconite, Winter, a description of it with its Culture, 246
Alder-Tree, directions for planting, 464
Alphabetical Order of Garden Plants and Seeds, 175
Ananas, the different sorts of them, 151. The management of them, 153. (See *Pine Apple*.)
Anemone, or *Wind Flower*, the Sorts most esteemed, with the Culture of them, 339
Annual Flowers, the *Dutch Catalogue* of them, 347. Their *Botanical Names* and Culture, 356, &c.
 — whose Seeds are sown on Hot-beds, 411
 — a List of their *English Names*, 415
Apple-Tree, its Culture and Management, xiii
Apples, best to be chosen for the South West aspectd Walls, 42. For *Espaliers*, 86. A Collection of fine Trees of, 67
Appium or *Parsley*, directions for raising it, 182
Apricots, those best suited to the South and South West Walls, 32, 43. Directions for planting and pruning them, 33. A Collection of fine Trees of, 45
 — For an *Espalier*, 87
 — forced on Timber Walls, 100
Apricot-Trees, the Care of them, xiii
Artichokes, the Manner of raising them, 182
Asb-Tree, directions for planting, 454
Asparagus, how to be raised on Hot-beds, 89. Construction of the Hot-bed, with the Management of it, 93. In the open Ground, 184
Auricula Urfs, or *Bear's-Ear*, the Description of a good one, 313. The Soil and Compost fittest for them, *ib*. (See for further Directions the *Treatise on Vegetation*, v.) Of the Off-sets, 313
 — Of sowing the Seed and the future Progress of the Flower, 317

I N D E X.

Auricula Urfs, the Method recommended by the late Mr. Bullen, 319
 — some general Directions given by Mr. Miller, 323

B.

Balm, how to be raised, 186
Balm of Gilead, 187
Bark, the *Tan*, such as is fittest for *Oriental Hyacinths* and *Oriental Narcissus*, 208
Beans, *Kidney*, the Management of them on the Hot-bed, 99. The best Kinds for the open Ground, 188. The Culture of them, with directions for bringing them forward very early, 189
 — the *Scarlet*, *ib.*
Beech-Tree, directions for planting, 449
Beets, the Manner of cultivating them, 190
Beet-Chards, 191
Biennials, a curious collection of them, 404
Birch-Tree, directions for planting, 465
Blighting, the best aspected Wall to prevent it, 3
Bon Chretienne, a fine *Pear*, directions for its Culture, 38
Borders for *Vines* before Hot-walls, directions for making them, 8. For other Fruit, 20
Brocoli, the Culture of it, 191
 See the *Italian Method* as communicated by the *Bp. of Killala* to the *Dublin Society*, 192
Bulbous Iris, the Manner of raising it, 439

C.

Cabbages and *Saveys*, directions how to raise them, 194
Carnations, their different Sorts, with their Culture and the Compost best for them, 424
 — Manner of laying their Layers, 425
 — Compost for, 426
Carrots, the Cultivation of them in Gardens, and in the Fields, 195
Catalogue of Flower Seeds, 229
 — of Flower Roots, 234
 — of Seeds of Trees and flowering Shrubs, 235
 — of Seeds for the Improvement of Land, 236
 — of *American Tree* Seeds, 237
Celeri and *Celeriac*, the Time of sowing it, 196. An accidental Discovery by which some were raised very large, 197
Chardeons, or *Prickly Cinara*, directions for its Culture, 198
Cherries, the Management of them, with the Soil best suited to them, 17. Manner of laying them to the Wall, 19. Directions for pruning, 35. The best for the South West aspected Wall, 42
 — a fine Collection of Trees of, 48
 — forced on Timber-walls, 100
Cherry-Tree, the Care of them, xiv
Chervil,



I N D E X.

- Chervil, sweet*, the Time of sowing it, 199
- Chesnut-Tree*, directions for planting, 457
- Chives*, directions for propagating them, *ib.*
- Christmas Rose*, or *Black Helibore*, its Culture, 245
- Cinara, prickly*, 199
- Cions*, the form and use of them, *xiv*
- Clary*, directions for raising it, 200
- Cleft*, or *slit-grafting*, directions for, *xviii*
- , engraved Representations of, *xxxvi*
- Coal Ashes*, with the sweeping of the Streets, a good Manure for strong Soil, 2
- Colchicum Vernal*, or the *Autumnal Crocus*, directions for planting, 259. Further particulars relative to it, 432
- Colly-flowers*, directions for the Management of them, 200
- Compost Yard*, its Situation, 433. Directions for laying it out, 434
- Compost*, (for the *Primrose* and *Polyanthos* see the *Treatise on Vegetation*, *iv.* *Auriculas* *do. v.* *Hyacinth*, *do. vi.*)
- for the Culture of the *Pine Apple*, 145
- for the *Polyanthos* *Narcissus*, 311
- for the *Oriental Hyacinth*, 272
- remarkable Care taken to adjust the Compost for Flowers with that prepared by the *Dutch*, 434
- Coppices*, directions for laying them out, &c. 470
- Corn-flag*, the Culture of it, 432
- Cresses*, the different Sorts of them, with directions for raising them, 202
- Crocus*, or *Crocus Vernus*, the different sorts of the spring kind, with the Manner of cultivating them, 253
- Crow-foot*, see *Ranunculus*.
- Crown Imperial*, the different Sorts, and how to be managed, 262
- Cucumbers*, directions for forcing them on Hot-beds, 95. How to be planted and the management of them, 96. Directions to be observed when fruiting, 98. Under *Bell-glasses*, the management of them, 108
- Cuisse Madame*, a fine *Pear*, directions for the management of it, 38
- Currant-Tree*, its Culture, *xiv*
- Currants*, a good Fruit for the North aspected Wall, 76. A fine Collection of Trees of, 73. For *Espaliers*, the Sorts to be preferred, 88. Directions how to propagate them, *ib.*
- Cyclamen* or *Sow-bread*, their different Sorts and how to be raised, 258

D.

- Daffodils*, or *Pseudo-Narcissus*, the different Sorts, with directions for the management of them, 255
- Dens Canis*, or *Dog's Tooth Violet*, its Culture, 259. Of their Seedlings. 261
- Dii*,

I N D E X.

Dill, how to be raised, 202
Directions, general ones, to
Florists and *Nursery-men*, 433
Directions for planting *Woods*, 436
Dogwood Trees, the Sorts that
will stand out in this Cli-
mate, and those fittest for
- Clumps, 78
Dracunculus, or *Dragon*, the
Time and Manner of plant-
ing them, 433
Dung, (for the Use of that of
Cows, *Oxen*, and *Hogs*, in
the Culture of a Garden,
see the *Treatise on Vegeta-*
tion,) ix

E.

Earth, its composition and
how fertilized, see the *Trea-*
tise on *Vegetation*, i
East aspect'd *Walls*, Fruits
best suiting it, 79
Elm-Tree, directions for pro-
pagating, 450
—, directions for planting
in a stiff Soil, 472
Endive, the Manner of culti-
vating it, 203
Escalion, 204
Espaliers, directions for fram-
ing them, 85. The Fruits
best suited to them, 86. For
small one, *Gooseberries* and
Currants are recommended,
88
Espaliers, their form, and the
Trees best suiting them, xv
Exotics, such as will thrive
best in Clumps, on the South
Side of the Garden, 78

F.

Fennel, directions for raising
it, 204
Fig-Trees, directions for the
Management of them, xvi
Figs, the Manner of propa-
gating them, with the best
adapted Situations for them,
38. The Culture of this
Fruit, with the Names of
those most esteemed, 39.
The Time of planting them,
ib. Pruning in the Spring
the most eligible, 40. Ma-
nagement of them in the
Winter, 41
Finochia, or *Italian Fennel*,
directions for raising it, 204
Fir-Tree, directions for plant-
ing them, 467
Fleur du Lys, or *Iris*, the dif-
ferent Sorts, with their Cul-
ture, 430
Flowers, a Catalogue of Seed
of, 229
— a Catalogue of Roots
of, 234
Flowering Shrubs, a Catalogue
of, 235
Frames and *Glasses* for forcing
Vines, directions for making
them, 12
—, the double, for keep-
ing of *Annuals* in Winter,
directions for their construc-
tion, 359
Fritillaries, the Manner of
raising them, 259
Fruits, directions for forcing
against Timber Walls, 100
Fruiting of the *Pine Apple*,
an accidental Discovery,
which proved very success-
ful, 159
Garden,

I N D E X.

G.

Garden, the *Kitchen*, the form and situation of one, 1. General directions for the Position of the Walls, 3. Best Situation for the South-wall, *ib.* The best Manner of building Walls, *ib.* Hot-walls with Flues and Ovens, directions for their Constructions, 4. The South Side, how to be disposed of when laid open, 78. *For the Management of the different Soils see the Treatise on Vegetation*, iii

Garden Plants, an alphabetical order of, 175

Garlick, 205

Gladiolus, or *Corn-flag*, directions for raising them, 432

Gooseberries, a fine Collection of Trees of, 71. The best sort for *Espaliers*, and how to be propagated, 88. Directions for pruning them, 89. Forced on Timber-walls, 100

Gooseberry-Trees, their Culture, xvi

Grafting, instructions for, xvi

—, engraved Representations of, xxxvii

—, by approach, directions for, xx

Grafting on Peach and Apricot Stocks, to be preferred, 28.

Apricots on the St. Julian's Plumb, 33. The *Butter Pear* on *Quince Stocks*, when the Soil is strong, and holding, but otherwise on free Stocks, 36. *Apples for Espaliers*, on *Paradise Stocks* when confined, 86. But on

Codlings, *Dutch Paradise* or *Bittern*, when there is room, *ib.*

Gravel, its Use for Gardens, xxi

Guernsey Lilly, how to be propagated, 258

H.

Heading and planting of *Trées*, best Time, 21

Hedges, their best form and use, xxii

Helebores-black, or *Christmas Rose*, directions for propagating it, 245

Hepatica, an Account of it, with its Culture, 249

Hornbeam-Tree, directions for planting, 453

Hot-beds for the *Melonry*, &c. the proper Situation for one, 89. For *Asparagus*, 89. For *Mushrooms*, directions for making, 90. For *Pease*, *ib.* For early *Cucumbers*, *ib.* In the *Kitchen Garden*, for raising of *Musk Melons*, 102. Of *Horse-dung* for the raising of *Cucumbers* and *Melons*, directions for making, 205. Of *Tanner's Bark*, 207

Hot-walls for *Vines*, the Management of them, 4. Their Construction, 5. For *Peaches* and *Nectarines*, directions for them, 15. A List of those fittest for forcing, *ib.* Great Advantage of those Walls recommended, 16. Some directions necessary to be attended to, 35

Hyacinths, *Oriental*, (for their *Compost*, see the *Treatise on Vegetation*,

I N D E X.

Vegetation, vi.) A fine
Compost for, 272. A Col-
lection of them particularly
described, 263
Hyacinths, Cow Dung how to
be prepared for them, 207.
Tanner's Bark, 208
——, directions for raising,
293
——, particular directions
for, 296
——, double early blowers,
white and red, 299
——, —, blues, *ib.*
——, second blowers, white
and red, 300
——, —, blues, *ib.*
——, late blowers, red and
white, 301
——, —, blues, *ib.*
——, early single, blues,
302
——, second, do. *ib.*
——, latest, do. 303
——, early white and rose-
coloured, *ib.*
——, second, do. *ib.*
——, latest, do. *ib.*
——, some general directi-
ons for, 304
——, the Manner practised
by Mr. George Voerhelm, of
Haerlem, 305
——, such as will blow in
water, 308
——, some general directi-
ons for, 309

I.

Imperial Crown, 262
Inoculation, directions for per-
forming, xxiii
Iris Persian, 254
Iris, or *Fleur de Lys*, its Cul-
ture, 430

K.

Kail, or *Kilmaurs*, 209
Kidney-beans, on Hot-beds,
how to be managed, 99.
The best kinds for the open
Ground, 188. The Cul-
ture of them, with directi-
ons for bringing them for-
ward very early, *ib.*
——, the Scarlet, direc-
tions for their Culture, 189

L.

Laburnum, or *Pease-cod Tree*,
directions for planting them,
462
Land, a Catalogue of Seeds
for the Improvement of, 236
Layers, the Management of
them, xxv
Leaves of Trees, directions for
making a Compost of them,
see the Treatise on Vegetati-
on, x
—— for encreasing Dung,
207
Leeks, the Manner of raising
them, 209
Lettuces, a Variety of them,
and how to be raised, 210
Lilies and *Martagons*, the Cul-
ture of them, 431
Lime-Tree, directions for plant-
ing them, 463

M.

Manure, the Kinds for differ-
ent Sorts of Soils, 2. *see the*
Treatise on Vegetation, iii
Maple-Trees, directions for
planting them, 457
Marjoram, the *Sweet*, and the
Pot, directions for raising it,
211
Martagons,

INDEX.

Martagons, List of them with their Culture, 432
Medlars, a fine Collection of Trees of, 71
Melons, the *Musk*, directions for raising them, particularly the *Cantaleupe*, 101. Directions necessary to be observed, 104. Double *Frames*, directions for making them, *ib.* Number of *Fruit* that should be suffered to stand, with some directions for ripening them, 105. Manner of setting the *Fruit*, by uniting the *Male* with the *Female-flower*, 106. Directions for cutting the *Fruit*, *ib.* How to manage the second crop, *ib.* Account of the *Winter Melon*, and the Manner of preserving it, 107. Oiled Paper *Frames*, a Representation of them for the covering of *Melons* and *Tulips*, 141
Melons, directions for raising without Fire, by Mr. Taylor, 109
Melon-Thistle, directions for propagating it, 162
Moss-ground, the Value of it, for Flower-beds, see the *Treatise on Vegetation*, ix
Minionette d Egypt, a beautiful fine scented *Annual*, the Manner of cultivating it, 310
Morello Cherries, Manner of dressing them, 17. The best for North aspected Walls, 76
Musk-Melon, the Culture of it, 101
Musbrooms, Manner of constructing *Hot-beds* for them, 90. Management of them,

91. The *Spawon* whete to be gathered, with directions for using it, 92
Mustard, the *White*, the proper Season for sowing it, 212

N.

Narcissus Oriental, fine Compoit for, 272. (See *Hycinthos*.)
Narcissus Polyanthos, see *Polyanthos*, &c.
Nectarine-Tree, directions for the Management of it, xxv
Nectarines, the Management of them against the common Wall, 19. Directions for pruning them, 24, 35. The Kind best adapted to the South West aspected Wall. 42
———, a fine Collection of Trees of, 45
North aspected Walls, Fruits best suiting it, 76
Nursery, the Use of it, xxvi

O.

Oak-Trees, directions for planting them, 446
Oiled Paper, covered *Frames*, for *Melons* and *Tulips*, directions for their construction, with an engraved Representation, 141
Onions, the Sorts most esteemed, 212. Directions for making the Beds best suited to their Culture, *ib.* Instructions for weeding and preserving them for use, 213. The Culture of the *Straßburgh*, *Silver-skinned*, *Welsh*, and *Portugal Onion*, 213
Orchards,

I N D E X.

- Orchards*, directions for laying one out, 80. Trees fittest for them, 82. For planting as recommended by a *French Author*, *ib.*
- Oriental Narcissus*, some particular directions necessary for, 304
- , early blowers, a List of, 307
- , late, do. *ib.*
- Ovens*, for the Hot-walls, dimensions of them, 82
- P.
- Parsley*, the Culture of it, with the different kinds, 214
- Parsnips*, directions for their Culture, 215
- Peach*, the Character of a good one, xxvii
- Peaches* and *Nectarines*, how to be managed against the Hot-wall, and the Compost proper for them, 15. The Kinds most approved of for forcing, *ib.* The Time and Manner of pruning them, 16 and 35
- Peaches*, the Management of them against the common Wall, 17. Directions for pruning them, 24. For nailing them to the Wall, 25. When fruiting, 29. Those budded on *Apricot Stocks* most to be preferred, 28. The Sort most esteemed for the South West aspectd Walls, 41
- a fine Collection of Trees of, 44
- Peaches* and *Nectarines*, how to be managed for forcing against Timber Walls, 100
- Peach-Trees*, directions for their Management, xxvi
- Pear-Trees*, their Culture and Management, xxvii
- Pears*, directions for pruning, 35. The Management of them, 37. The best kinds for Walls, 38. Best for *Es-paliers*, 86
- , a fine Collection of Trees of, for Summer, 50
- , do. for Autumn, 55
- , do. for Winter, 62
- Pease* on Hot-beds, how to be managed, with the proper kind for that Purpose, 99
- , how to be managed for early Crops, 215. On the open Ground, the Sors and Soil fittest for them, 216. Directions for planting the *Rouncivals*, *Marrows*, and the *Dwarf*, 217
- Persian Iris*, an Account of this fine Flower, with its Culture, 254
- Persian Ranunculus*, directions for their Culture, 341. A List of them, 344
- Pine Apple*, or *Anana*, a description of the Stove, (with an engraved Representation,) necessary for its Culture, 121. Mr. Miller's Process with the Plans of his Stove, *ib.* The different Sorts with the Method of raising them, *ib.* Compost fit for them, 145. Directions for planting them, 153. For making the Tannpit, 157. Plans of the fruiting Stove and Nursery-bed, *ib.* Directions for planting them unconfined in the Tan, 157. For transplanting the Plants, 158. Direction

I N D E X.

- rection for killing the Vermin on the *Pine*, 159. A new Discovery for the well fruiting of the *Pine*, 159. Ripeness of the Fruit, how to be distinguished, 160. Directions for taking off the Crown, for future fruiting, *ib.* Mr. *Adam Taylor's*, 163
- Plane-Tree*, directions for planting them, 456
- Planting of Woods*, directions for, 436
- Planting*, best Season for, 21
- of Trees against Walls, some directions for, 25
- against the South West aspected Wall, 33
- of the *Pine Apple*, an accidental Instance of one, which proved very favourable, 157
- Plum-Trees*, directions for their Management, xxvii
- Plums*, directions for planting them against the Wall, and the Sorts most esteemed, 30. Pruning of them how to be performed, 31. Directions for nailing them, *ib.* The best Sort for *Espaliers*, 32. For the South West aspected Walls, 42
- , a fine Collection of Trees of, 46
- Polyanthos Narcissus*, (*for the Compost see the Treatise on Vegetation*, iv.) The Manner of raising them, 311. List of the most curious, 312. Off-sets how to be managed, *ib.* Directions necessary to be attended to for their well growing and flowering, by the use of Tan in the Compost, 304, 312
- Pompony of Canada*, its Culture, 432
- Portugal Onion*, directions for cultivating it, 213
- Pseudo Narcissus*, or *Daffodils*, the different kinds with their Culture, 255
- Prickly Pear*, an Account of that fine Fruit, with its Culture, 162
- Prim-roses*, (*for the Compost see the Treatise on Vegetation*, iv.) A Description of the different kinds, with directions for raising them, 251
- Pruning*, its use, with directions for the performing it, xxviii
- Pruning of Vines*, some necessary directions for, 9 and 35. Of young Trees, 23. Of *Peaches* and *Nectarines*, 24. Of *Plums*, 31. Of *Apricots* and nailing them, 34. Directions for pruning in general, 25. *Monf. Le Genre's* Method, 25. Of *Pears*, 26, and 27. Some general directions in Regard to *Vines*, *Peaches*, *Nectarines*, *Cherries*, *Pears*, *Plumbs*, 35. Some further directions, 38. Spring pruning of *Figs*, an Experiment made to prove its superior Excellence to any other, 40
- Purslain*, the different kinds, with Instructions for raising it, 219

Quick-

I N D E X.

Q.

Quickbeam, or *Roane Berry-Tree*, directions for planting it, 461
Quinces, a Collection of Trees of, 70

R.

Radishes, directions for raising them, with a List of the best Sorts, 219
 —, the *Turnip*, 220
Ranunculus, the different Sorts and Culture of them, 340. Directions for planting them, *ib.* Manner of making their Beds, 342. Directions for gathering their Seeds, *ib.* For preserving their Roots, 343. Advantage of frequently changing the Seed, 344. A fine Collection of, *ib.* *Persian Ranunculus*, a List of, *ib.*
Rapuntium Flore maximo coccineo spicato, or *Red Cardinal Flower*, directions relative to it, 310
Raspberry-Tree, directions for its Culture, xxix
Raspberries, directions for planting them, with the Sorts most to be esteemed; 74 and 77
Reseda Egyptiaca minor floribus odoratissimis, a beautiful fine smelling Annual, directions for its Culture, 310
Rind-grafting, directions for, xvii
 —, engraved Representations of, xxxviii
Root-Room, directions for erecting one, 434

Roots of Flowers, a Catalogue of, 234
Rose, *Christmas*, how to propagate them, 245
Rosemary, directions for raising it, 220

S.

Sand, the Use of it in the Compost for Flowers, and the Manner of preparing the different Sorts, *see the Treatise on Vegetation*, v
Salsafy, directions how to raise it, 221
Saveys and Cabbages, how to raise them, *ib.*
Scallion, 222
Scorzoneria, its Culture, *ib.*
Seeds of Flowers, a Catalogue, 229
 — of Trees and flowering Shrubs, do. 235
 — for improving Land, 236
 — of *American Trees*, 237
Shallots, directions for raising them, 222
Silver Skinned Onion, its Culture, 213
Skirrets, the Culture of them, 222
Snow-drops, a description of them, with the Manner of raising them, 247
Soil, the best kind for the Kitchen Garden, 2. *see the Treatise on Vegetation*, xi
Sorrel, Manner of raising it, 223
South Wall, *Apricots* for, 32.
 — *West* or *West-wall*, 33
Sow-bread, or *Cyclamen*, 258
Spinage, directions for sowing it, with a variety of them, 223
Standards,

I N D E X.

Standards, the Management of them, xxix
Stocks, their Use, xxxi
Stoves for raising of *Pine Apples*, direction for, 121. For ripening the Fruit, 128. Variety of *Exoticks*, which may be placed on their Flues, 128
Straßburgh Onion, its Culture, 213
Strawberries, their Culture, xxx
 ———, a fine Collection of, 74
 ———, directions for forcing them in *Frames*, 100.
 The Culture of them in the open Ground, 173
Sweet William, directions for propagating it, 429

T.

Tan Bark, such as is fittest for *Oriental Narcissus* and *Oriental Hyacinths*, 208
Taylor, Mr. *Adam*, his directions for raising *Melons*, without Fire, 109. *Pine Apples*, 163
Thermometers, how to be managed for the Purpose of the Stove, 13, 123
Thyme, directions for raising it, 224
Timber Walls, for forcing of Fruits, the Manner of constructing them, 100
Torch Thistle, directions for placing of them in the Stove, 162. Manner of propagating them, *ib.*
Trees, the best Season of planting them, with directions for their Management, 21.

The best Form of one for bearing, 28
 ———, the Leaves of, their Use in making Dung, 207
 ———, a Catalogue of Seeds of, 235
 ———, *American*, do. 237
Trellaces, Manner of erecting them, 5
Tube-roses, the Manner of raising them, 119
Tulips, the Culture of them, with the Compost they best thrive in, 324, *see the Treatise on Vegetation*, vii and xi. Catalogue of the most curious, 325. The Manner of raising them from the Seed, by Mr. *Miller*, 327. By *Mont. Beulinz*, of *Brussels*, 335. Compost for them, *ib.* *Bisard Tulip*, List of them, 337. Directions for preserving the Roots of the Breeders, 336. Method practised by a Gentleman in *Holland* for breaking these Flowers, 338
 ———, the *double*, directions for raising them, *ib.*
Turnips, the different Sorts of them, with the Manner of cultivating them, 225

V.

Vermin on the *Pine Apple Plants*, directions for destroying, 159
Vernal Colchicum, the best Manner of cultivating them, 259
Vines, directions for planting them, with a List of those most esteemed, 7. *Cuttings* to be preferred to *Layers*, 8.
 K k Best

I N D E X.

Best season for taking them off, *ib.* Pruning when necessary, and how to be performed, 10. Directions for the *Autumnal* pruning before the Season of forcing, 11. Frames and Glasses; the Construction of them, for forcing of *Vines*, 11. The Degree of Heat necessary when forcing, 13. The Management of them in that State, *ib.* Directions in Regard to their *Fruits* when ripening, 13. For topping their Fruit-bearing Branches, *ib.* How to manage them the second Year for forcing, 15
Violet, the *Dog's Tooth*, directions for planting them, 259

W.

Walls, directions for their Construction and Aspect, 3. For forcing of *Fruits*, 4. Directions to be observed in planting them, 6. Hot, 15. *South*, 32. Of nailing the

Trees against them, 34. Some necessary Directions relative to them, 84. *South-West*, 38 and 41. *North* aspected Walls, the *Fruits* suited to them, 76. *South-West* aspected Walls, 78. Collection of *Exotics* in Place of, *ib.* *East* aspected, the *Fruits* suited to it, 80
Walls of Timber, for forcing *Fruit*, their Construction, 100

Walnut-Tree, directions for planting, 460

Water, the Kind fittest for Use in the Garden, 1

Welch Onion, directions for its Culture, 213

Wilding, directions for grafting of the Fruit, 82

William, *Sweet*, Manner of propagating it, 429

Willow-Tree, directions for planting, 466

Wind-flower, see *Ranunculus*.

Woods, directions for planting, 436



F I N I S.

